



Business Plan

Approval of Business Plan for Multi-Year Control Period
from FY 2019-20 to FY 2021-22

Petition No. 262/2018

For

Electricity Wing of Engineering Department, Chandigarh

12 November 2018

JOINT ELECTRICITY REGULATORY COMMISSION

For the State of Goa and Union Territories,

Udyog Minar, 6th & 8th Floor

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List of abbreviations

Abbreviation	Full Form
A&G	Administrative and General
ACoS	Average Cost of Supply
Act	The Electricity Act, 2003
AMR	Automatic Meter Reading
APCPL	Aravali Power Company Pvt. Ltd.
APR	Annual Performance Review
ARR	Aggregate Revenue Requirement
ATE	Appellate Tribunal of Electricity
BBMB	Bhakra Beas Management Board
BPL	Below Poverty Line
CAGR	Compound Annual Growth Rate
CAGR 'n' Year	CAGR based on 'n' years of data for (n-1) periods / jumps
Capex	Capital Expenditure
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGRF	Consumer Grievance Redressal Forum
CGS	Central Generating Stations
COD	Commercial Operation Date
Cr	Crores
Discom	Distribution Company
DSM	Deviation Settlement Mechanism
ED	Electricity Department
EHT	Extra High Tension
ERP	Enterprise Resource Planning
EWEDC	Electricity Wing of Engineering Department, Chandigarh
FPPCA	Fuel and Power Purchase Cost Adjustment
FY	Financial Year
GFA	Gross Fixed Assets
HT	High Tension
IEX	Indian Energy Exchange Limited
IPP	Independent Power Producer
ISTS	Inter State Transmission System
JERC	Joint Electricity Regulatory Commission for the State of Goa and Union Territories
LT	Low Tension
MCLR	Marginal Cost of funds based Lending Rate
MU	Million Units
MYT	Multi-Year Tariff
NFA	Net Fixed Assets

Abbreviation	Full Form
NHPC	NHPC Ltd.
NPCIL	Nuclear Power Corporation of India Ltd.
NTPC	NTPC Ltd.
O&M	Operation and Maintenance
PLF	Plant Load Factor
PLR	Prime Lending Rate
PPA	Power Purchase Agreement
R&M	Repair and Maintenance
REC	Renewable Energy Certificate
RLDC	Regional Load Despatch Centre
RoE	Return on Equity
RPO	Renewable Purchase Obligation
SBI PLR	SBI Prime Lending Rate
SERC	State Electricity Regulatory Commission
SLDC	State Load Despatch Center
SOP	Standard of Performance
T&D	Transmission & Distribution
THDC	THDC India Ltd.
TVS	Technical Validation Session
UI	Unscheduled Interchange
UT	Union Territory

Before the
Joint Electricity Regulatory Commission
For the State of Goa and Union Territories, Gurugram

QUORUM

Shri. M. K. Goel (Chairperson)

Smt. Neerja Mathur (Member)

Petition No. 262/2018

In the matter of

Approval of Business Plan for Multi-Year Control Period from FY 2019-20 to FY 2021-22.

And in the matter of

Electricity Wing of Engineering Department, Chandigarh..... Petitioner

ORDER

- a) This Order is passed in respect of the Petition filed by the Electricity Wing of Engineering Department, Chandigarh for approval of its Business Plan for the Multi-Year Control Period of three years commencing from 01 April 2019 to 31 March 2022.
- b) In exercise of the powers conferred on it by sub-Section (2) of Section 181 read with Section 36, Section 39, Section 40, Section 51, Section 61, Section 62, Section 63, Section 64, Section 65 and Section 86 of the Electricity Act, 2003 (36 of 2003) and all other powers enabling it in this behalf, the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (except Delhi) after previous publication, issued Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Generation, Transmission and Distribution Multi Year Tariff) Regulations, 2018 on 10 August 2018.
- c) In terms of Regulation 8.1 and 16 of the aforesaid Regulations, the Petitioner has filed a Petition for approval of its Business Plan for three years Control Period i.e. from FY 2019-20 to FY 2021-22 with details for each year of the Control Period before the Commission.
- d) After receiving the Petition, the Commission scrutinized the contents of the Petition and called for further information/data, wherever required, in the form of deficiency notes so as to take a prudent view of the Petition. Comments/objections/suggestions were also invited from the stakeholders and a public hearing was conducted. All the comments/objections/suggestions made by the stakeholders in both written or verbal mode are taken into consideration.
- e) Based on the information/documents submitted by the Petitioner and keeping in view the provisions of the Electricity Act, 2003 and the relevant Regulations framed thereunder, the Commission hereby approves the Business Plan for the Control Period from FY 2019-20 to FY 2021-22 by way of this Order, which covers the capital investment plan, sales forecast, power procurement plan, performance targets, fixation of T&D loss trajectory etc.

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- f) The Petitioner is now directed to submit the Multi Year Tariff Petition for the Control Period on or before 30 November 2018, in terms of Regulation 9 of the aforesaid Regulations.
- g) Ordered as above, read with the attached document giving detailed reasons, grounds and conditions. Copy of this Order be sent to the Petitioner, CEA and the Administration of UT of Chandigarh.

Sd/-

Neerja Mathur
(Member)

Sd/-

M.K. Goel
(Chairperson)

JOINT ELECTRICITY REGULATORY COMMISSION
(For the State of Goa and Union Territories)

Place: Gurugram

Date: 12 November 2018

1. Chapter 1: Introduction

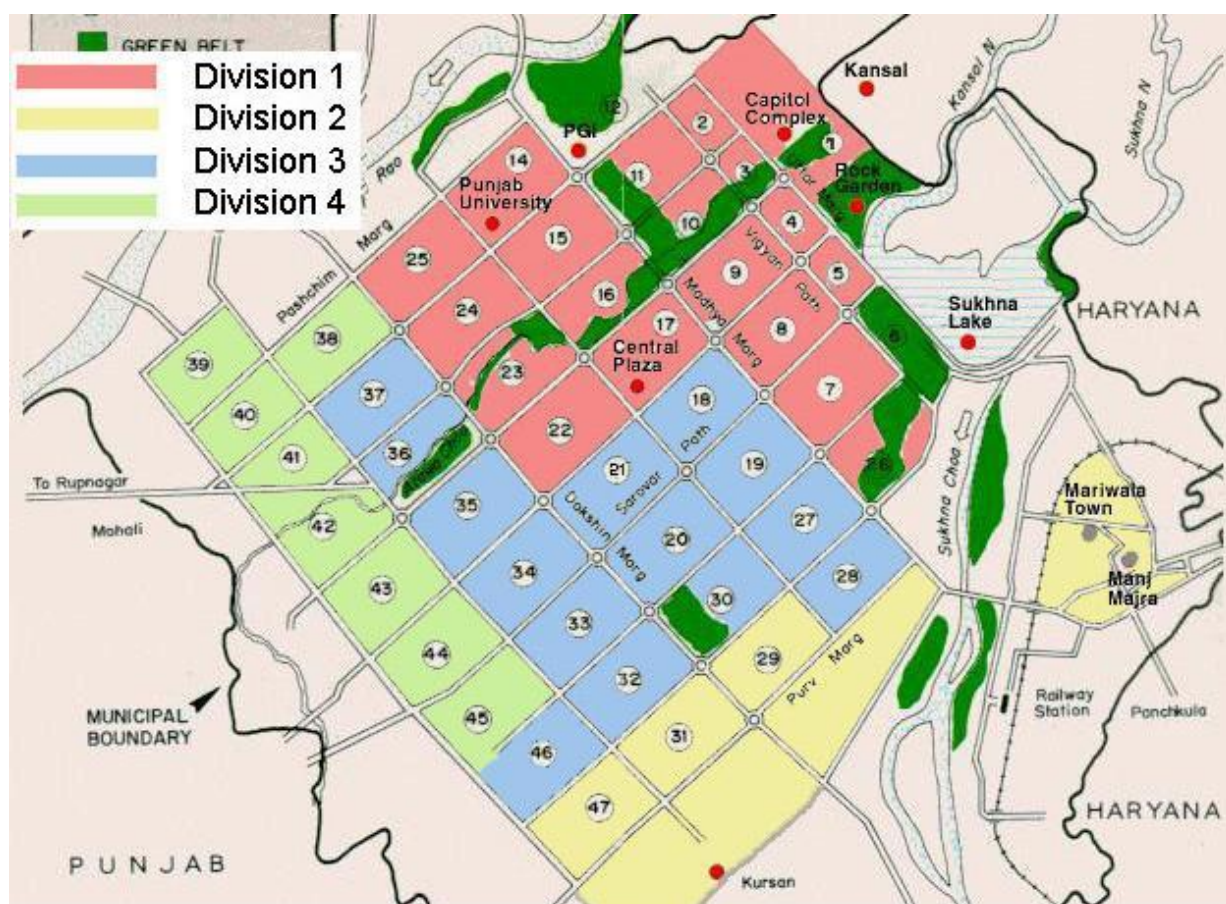
1.1. Joint Electricity Regulatory Commission

In exercise of powers conferred by the Electricity Act 2003, the Central Government constituted a Joint Electricity Regulatory Commission for all the Union Territories except Delhi to be known as “Joint Electricity Regulatory Commission for the Union Territories” vide notification no. 23/52/2003-R&R dated 2 May 2005. Later with the joining of the State of Goa, the Commission came to be known as “Joint Electricity Regulatory Commission for the State of Goa and Union Territories” (hereinafter referred to as “the JERC” or “the Commission”) vide notification no. 23/52/2003-R&R (Vol. II) dated 30 May 2008.

JERC is an autonomous body responsible for regulation of the Power Sector in the State of Goa and the Union Territories of Andaman & Nicobar Islands, Lakshadweep, Chandigarh, Daman & Diu, Dadra & Nagar Haveli and Puducherry, consisting of generation, transmission, distribution, trading and use of electricity. Its primary objective includes taking measures conducive to the development of the electricity industry, promoting competition therein, protecting the interest of consumers and ensuring the supply of electricity to all areas.

1.2. Union Territory of Chandigarh

The Union Territory of Chandigarh, (hereinafter referred to as “UT”) covers an area of 114 sq. km and is located in the Northern region of India. Due to its planned nature, the Territory is one of the most developed UTs in India and has turned into a hub for commerce and tourism. The current demand is primarily dependent on the domestic and commercial consumption which contributed approx. 77% to the total sales of electricity in FY 2017-18.



1.3. Electricity Wing of Engineering Department, Chandigarh

The Electricity Wing of UT Administration of Chandigarh (hereinafter called “EWEDC”), is a deemed licensee under Section 14 of the Electricity Act 2003, and is carrying on the business of transmission, distribution and retail supply of electricity in the UT. The EWEDC has been allowed to function as an integrated distribution licensee of the Territory. It is responsible for ensuring quality and continuous power supply to every resident of Chandigarh at the most economical rates. For operational purposes, the total service area of Chandigarh has been divided into 4 divisions. All the sectors and villages of Chandigarh are electrified and any desiring consumer can avail power supply by submitting requisition in the prescribed form to the appropriate office of the Department subject to fulfilment of the requisite conditions and payment of charges. The electricity operation circle is headed by Superintending Engineer along with five Executive Engineers.

The key duties being discharged by EWEDC are:

- Laying and operating of such electric line, sub-station and electrical plant that is primarily maintained for the purpose of distributing electricity in the area of supply of EWEDC
- Operating and maintaining sub-stations and dedicated transmission lines connected therewith as per the provisions of the Electricity Act, 2003 (Act) or the Rules framed there under
- Arranging, in-coordination with the Generating Companies, for the supply of electricity required within the boundary of the UT and for the distribution of the same in the most economical and efficient manner;
- Supplying electricity, as soon as practicable to any person requiring such supply, within its competency to do so under the Act
- Preparing and carrying out schemes for distribution and generally for promoting the use of electricity within the UT.

EWEDC does not have its own generation and procures power from its allocation from central generating stations of NTPC, NHPC, NPCIL, BBMB, SJVNL, and THDC. The present power allocation of Chandigarh is approximately 277 MW from various generating stations including 94.89 MW from BBMB. The deficit is met through short-term purchase under bilateral transactions and power exchange.

Existing Network

The present distribution system of EWEDC consists of 108 km of 220 kV double circuit (D/C) lines, 128 km of 66 kV D/C lines, 873 circuit km of 11 kV lines along with 2130 distribution transformers.

At present, the UT gets power from 220 kV Sub Station at Kishangarh Manimajra through 220 kV double circuit Chandigarh - Nalagarh line from 400 kV grid substation Nalagarh (POWERGRID), 66 kV Chandigarh line from 220 kV Mohali (PSPCL) Grid substation to 66 kV Grid Substation at Sector - 52 and Sector – 39 and 66kV Chandigarh line from 220 kV Dhulkot (Ambala) Grid substation to 66 kV Grid Substation at Sector - 28.

The details of the Sub-Stations are as follows:

Table 1: Transmission and Distribution Network of EWEDC

S. No.	Sub-station	Voltage Level (kV)	Installed Capacity (MVA)
220 kV Sub-station			
1	Kishangarh	220/66 kV	300 MVA
66 kV Sub-station			
2	B.B.M.B. Sector - 28	66/33/11 kV	101 MVA
3	Sector - 52	66/33/11 kV	107.5 MVA
4	Sector - 56	66/11 kV	40 MVA
5	Sector - 39	66/11 kV	52.5 MVA
6	Sector - 12	66/11 kV	50 MVA

S. No.	Sub-station	Voltage Level (kV)	Installed Capacity (MVA)
7	Sector - 1	66/11 kV	32.5 MVA
8	Ind. Area Ph. 1	66/11 kV	57.5 MVA
9	Ind. Area Ph. 2	66/11 kV	45 MVA
10	Sector - 32	66/11 kV	45 MVA
11	I.T. Park M/Majra	66/11 kV	60 MVA
12	Sector - 47	66/11 kV	40 MVA
13	Mani Majra	66/11 kV	40 MVA
14	Sector - 18	66/11 kV	45 MVA
33 kV Sub-station			
15	Sector - 17	33/11 kV	43.5 MVA
16	Sector - 18	33/11 kV	24.5 MVA
17	Sector - 34	33/11 kV	25 MVA
18	Sector - 37	33/11 kV	10 MVA
19	Ind. Area Ph. 1	33/11 kV	12 MVA

1.4. Electricity Regulatory Process in Chandigarh

The Commission had issued the first Multi-Year Order for “Approval of Business Plan for the MYT Control Period FY 2016-17 to FY 2018-19” on 28 December 2015 in respect of EWEDC.

1.5. Multi Year Tariff Regulations, 2018

The Commission notified the Joint Electricity Regulatory Commission for the State of Goa and Union Territories (Generation, Transmission and Distribution Multi Year Tariff) Regulations, 2018 on 10 August 2018. The said Regulations have been hereinafter referred to as the “JERC MYT Regulations”. As per Clause 2.1.17 of these Regulations, the “Control Period” is defined as multi-year period comprising of three financial years from FY 2019-20 to FY 2021-22.

These Regulations are applicable to all the generation companies, transmission and distribution licensees in the State of Goa and Union Territories of Andaman & Nicobar Islands, Lakshadweep, Chandigarh, Daman & Diu, Dadra & Nagar Haveli and Puducherry.

1.6. Filing and admission of Petition for Multi-Year Business Plan for FY 2019-22

As per Clause 8.1 of the JERC MYT Regulations, the Petitioner is required to file for approval of the Commission, its Business Plan for three years Control Period i.e. from FY 2019-20 to FY 2021-22 with details for each year of the Control Period.

EWEDC submitted the current Petition for approval of ‘Business Plan for MYT Control Period FY 2019-20 to FY 2021-22 vide letter no. SEE/OP/C1/2018/210/2044 dated 29 August 2018.

After initial scrutiny/analysis, the Petition on Business Plan for the Control Period FY 2019-20 to FY 2021-22 was admitted on 6 September 2018 and was numbered as Petition no. 262/2018.

1.7. Interaction with the Petitioner

A preliminary scrutiny/analysis of the Petition was conducted and certain deficiencies were observed. Accordingly, deficiency notes were issued to the Petitioner. Further, additional information/clarifications were solicited from

the Petitioner as and when required. The Petitioner submitted its response on the issues through various letters/emails. The following table provides the list of interactions with the Petitioner along with the dates:

Table 2: Interactions with the Petitioner

S. No	Subject	Date
1	Admission of the Petition by the Commission	06.09.2018
2	Deficiency Note issued by the Commission	11.09.2018
3	Replies to Deficiency Note received by the Commission	26.09.2018
4	Second Deficiency Note issued by the Commission	12.10.2018
5	Replies to Second Deficiency Note received by the Commission	17.10.2018, 26.10.2018

The Order has referred at numerous places to various actions taken by the “Commission”. It may be mentioned for the sake of clarity that the term “Commission,” except for the Hearing and Orders, denotes the Secretariat of the Commission responsible for carrying out technical due diligence and validation of data of the Petitions filed by the utilities, obtaining and analysing information/clarifications received from the utilities, and submitting relevant issues for consideration of the Commission.

1.8. Public Hearing Process

The Commission directed the Petitioner to publish the summary of the Business Plan proposal in the abridged form to ensure public participation. The public notices were published by the Petitioner for inviting objections/ suggestions from the stakeholders on the Business Plan Petition:

Table 3: Public Notices published by the Petitioner

Sr.No.	Date	Name of Newspaper	Language
1	04.10.2018, 21.10.2018	The Tribune	English
2	04.10.2018, 21.10.2018	Dainik Bhaskar	Hindi
3	04.10.2018, 21.10.2018	Ajit	Punjabi

The Petitioner also uploaded the Petition on its website (<http://chdengineering.gov.in/>) for inviting objections and suggestions on the Petition. Interested parties/stakeholders were requested to file their objections / suggestions on the Petition to the Commission with a copy to the Petitioner on or before 23 October 2018. The Commission has also uploaded a copy of the Petition on its website to facilitate the stakeholders.

The Commission received various objections/suggestions on the Petition. The Commission forwarded these to the Petitioner for communicating its reply to the objections. The Petitioner has sent its replies to the Commission as well as all the stakeholders who have given written comments and those who presented their comments during the Public Hearing conducted by the Commission.

The Commission also published Public Notices in the leading newspapers as tabled below, giving due intimation to the stakeholders, consumers and the public at large about the Public Hearing to be conducted by the Commission on 23 October 2018 from 10 AM onwards at Government Museum and Art Gallery, UT of Chandigarh.

Table 4: Public Notices published by the Commission

S.No.	Date	Name of Newspaper	Language
1	28.09.2018, 20.10.2018	The Tribune	English
2	28.09.2018, 20.10.2018	Dainik Bhaskar	Hindi
3	28.09.2018, 20.10.2018	Ajit	Punjabi

The Commission has examined the issues and concerns raised by the stakeholders in writing and / or voiced by them. The major issues raised by the Stakeholders, the responses of the Petitioner thereon and the views of the Commission, have been summarized in Chapter 2 of this Order.

1.9. Organization of the Order

This Order is organized in the following Chapters:

- **Chapter 1** of the Order provides the background and brief description of the Territory, Utility and Regulatory process undertaken by the Commission.
- **Chapter 2** of the Order provides the summary of various suggestions and objections raised by the stakeholders, followed by the response of the Petitioner and the views of the Commission on these issues.
- **Chapter 3** discusses the submissions of the Petitioner in its Business Plan Petition and the Commission's views thereon.

2. Chapter 2: Stakeholder Consultations

2.1. Regulatory Process

The Public Hearing was held on 23 October 2018 at Chandigarh in respect of the Multi-Year Business Plan Petition for Control Period from FY 2019-20 to FY 2021-22. During the Public Hearing, stakeholders presented their views in person before the Commission. All the participants from the public, who had not submitted written objections earlier, were also given an equal opportunity to present their views/suggestions in respect of the Petition.

2.2. Suggestions/ Objections of the Stakeholders/ Response of the Petitioner and Commission's Views

The Commission is appreciative of the efforts of various stakeholders in providing their suggestions/ comments/ observations to make the Electricity Distribution Sector more responsive and efficient. The Commission has noted the concerns of all stakeholders and has tried to address them to the extent possible in the subsequent sections and/or through directives. The Stakeholders' comments, the response of the Petitioner and the views of the Commission are summarized below.

2.2.1. Transmission & Distribution Loss

Stakeholder Comments

- The estimated T&D loss for FY 2018-19 is 13.25% as against 9.51% (Actual unaudited) for FY 2017-18, which needs corrective action.

Petitioner's Response

- The actual T&D loss for FY 2017-18 is 9.51 % and sharp fall in T&D loss has already been explained under Para 8.3 of the Business Plan Petition, where increase in the energy sale through UI/exchange from 36.76 MUs in FY 2016-17 to 131.74 MUs in FY 2017-18 has been stated to be the reason for this fall. The Petitioner has explained in its Business Plan Petition that this increased energy sale is attributable to 48 MUs returned to J&K in FY 2017-18 against energy received in FY 2015-16 and FY 2016-17. The Petitioner has also submitted that T&D loss figures are provisional and unaudited.

Commission's View

- The Commission notes the Stakeholder comments that the loss reduction being estimated for FY 2018-19 is 13.25%, while the Petitioner has achieved 9.51% (actual unaudited) in FY 2017-18. The Commission also notes the explanation provided by the Petitioner relating to the steep reduction in FY 2017-18 to increased energy sale through UI/exchange. The Commission informs that keeping in view the achievements of FY 2017-18, it has approved a steeper loss reduction trajectory than that proposed by the Petitioner, as discussed in Chapter 3 of this Order.

2.2.2. Capital Investment Plan

Stakeholder Comments

- 66 kV ongoing schemes (Sl. No. 8 - Providing 66 kV Transmission line with underground cable): The Scheme was to be completed in FY 2016-17 and as per the commitment given by EWEDC to the JERC, the likely date of completion was 30 June 2018. The transformers and associated panels have been lying unutilized for the last few years. No responsibility has been fixed for non-utilization of costly equipment. Further, as per the capitalisation schedule, it is planned to be capitalised in FY 2019-20, which means that the Utility is unlikely to finish the scheme in FY 2018-19 as well.

Petitioner's Response

- The upgradation of existing 33 kV Sub Station to 66 kV Sub Station Sector 34 has already been allotted to M/s POWERGRID and the work is in the final stage. The work for providing 66 kV Transmission line with underground cable from Sector 32 Grid Sub Station to Sector 34 Grid Sub Station has already been allotted to M/s REC and the work is in progress, and is likely to be completed in this financial year.

Commission's View

- The Commission notes the Stakeholder's comments and the progress update provided by the Petitioner. The Commission expresses its deep concern regarding the slow pace of execution of approved capital expenditure schemes by the Petitioner in general and this scheme in particular. The Commission directs the Petitioner to make all efforts to ensure improvement in the execution speed and inform the Commission about the status of each scheme on a quarterly basis as per Clause 8.5 (f) of the JERC MYT Regulations.

2.2.3. Manpower Plan

Stakeholder Comments

- One post of Chief Engineer was approved by the JERC to implement the National Policy on Renewable Energy as solar generation is getting nation-wide thrust. Further, one post of Chief Engineer for implementation of SCADA System to be undertaken by EWEDC was also approved. It is not clear as to which authority has deferred the Manpower proposal due to Administrative reasons as conveyed to the Ministry of Power. Urgent action is requested for filling up the required vacancies.

Petitioner's Response

- The Chandigarh Administration has deferred the manpower proposal due to administrative reasons.

Commission's View

- The Commission notes the Stakeholder's views and reasons provided by the Petitioner for the deferment of manpower addition proposal. The Commission has examined the Petitioner's proposal for manpower addition and directs the Petitioner to expedite furnishing of Government approvals at the time of Multi-Year Tariff determination.

2.2.4. Other Comments/ Objections

Stakeholder Comments

- a) Installation of Solar System & Preparation of Electricity Bills - During presentation by Chandigarh Renewal Energy and Science & Technology Promotion Society (CREST) in Sector-36, Chandigarh in February 2017, it was informed that Solar Installation completion including release of subsidy would take about 8-10 weeks from the date of application. The experience of the consumers in this regard has not been very pleasant. Suitable action for reducing the timeframe is requested by effective coordination between the contractor on the panel, consumers, CED and the CREST for realistic promotion of Solar Energy System. An analysis of Solar Systems (applied for and completion dates) by CREST and CED Chandigarh (EWEDC) from 01-04-2017 till date will give complete data.

The Stakeholder shared his own experience of applying for 3 KW capacity Solar System in February 2017 (last week) in Kothi No. 1579, Sector-36-D, Chandigarh (A/C No.: 307/3643/157900G). The System was operational from 19th May 2017. The First Solar Bill was received on 13-11-2017 (-Rs 5943). Since then I have received five more bills dated 13-01-2018, 11-03-2018, 14-05-2018, 13-07-2018 and 21-08-2018 (net bill – Rs 4837). As per bill dated 14-05-2018, Net Bank units of 142 were indicated. These units have not been carried forward to the subsequent bills. Either the amount standing to his credit for more than a year must be refunded by cheque immediately or bank rate interest must be given for past one year. Also, till

date, he has not received any payment for Solar Net Bank Units exported to the Grid. A Policy/Directive needs to be issued in this regard as number of other consumers may be facing the same problem.

- b) The Solar Agreement for Net Metering that was executed for last one month only contains certain Clauses, which seem to be one sided e.g. 4.2, 4.3, 14 etc. The Agreement layout needs to be re-examined. As understood from CED, the agreement was vetted by JERC.
- c) As per Para 6.6.3, Electricity Duty, if applicable, shall be payable by the consumer on Net Energy imported from the Grid. As per the bills being received, the electricity duty is being charged for the Gross Imported units and not the Net imported units. Refund should be given to all Solar Consumers and corrective action taken for preparation of bills in future.
- d) Regulatory Surcharge of 5% of the total Energy and Demand charges (based on Tariff Order for FY 2018-19 Para 6.4.4) is being recovered from bills issued on or after 01-04-2018. No Annotation is being made on the bills. Transparency to the consumers may be given by way of one time indication in bills or in the newspaper. This will eliminate unwanted visits of consumers to the respective SDOs of the sub-divisions.
- e) Bills being received till date contain Monthly Tariff w.e.f. 01-04-2016 and not the rates approved in tariff for the FY 2018-19. Immediate action is requested.
- f) As informed vide Public Notice dated 05-09-2018 (in Tribune), JERC had invited suggestions/comments/inputs/objections from Public on Draft JERC (Supply Code) Regulations 2018 uploaded on their Website. The last date for receipt of same was 25-09-2018. The amended regulations will replace the earlier regulations on ESD dated 19-05-2010. The same is requested to be approved at an early date.
- g) Stakeholders raised concerns regarding inability to obtain Open Access in the UT of Chandigarh because of lack of procedure and responsible personnel identified by the CED.

Petitioner's Response

- a) The M/s CREST is a Nodal Agency for all types of Solar Power Plants in Chandigarh. The empanelment of contractors for installation of Solar Power Plant and release of subsidy etc. relates to M/s CREST, therefore, no comments are needed by the Electricity Department in this respect. The Net Exported Unit w.r.t. Account No. 307/3643/157900G of Kothi No. 1579, Sector 36-D, Chandigarh has already been audited by the concerned SDO and submitted to the Nodal Officer-cum- XEN Electy. 'OP' Div No. 2, UT, Chandigarh for payment. The payment of net units shall be released shortly to all eligible prosumers after they sign the PPAs. Payment is to be made to the prosumer on 6 monthly basis.
- b) As the Net Metering Agreement is approved by the Hon'ble Commission vide Order dated 29 December 2016 in Petition No. 200/2016, therefore, no comment is needed by the Electricity Department.
- c) The Electricity Duty shall be payable by the consumer on total energy imported from the Grid. However, the electricity bill of the prosumer shall be prepared for the Net Units after adjusting solar units exported to grid.
- d) The Public Notice for imposition of regulatory surcharge of 5% of the total energy and demand charges has already been published in various newspapers from 20 April 2018 to 22 April 2018.
- e) M/s NILEIT is a billing and printing agency for all types of electricity consumers. The printing of electricity bills is a continuous process; therefore, some buffer stationery is required to meet the demand of upcoming Cycle/ Group. The Hon'ble Commission has approved the Tariff Order of FY 2018-19 on 28 March 2018 which is effective from 1 April 2018. Therefore, the billings of prosumers falling in the month of April/ May are printed on the old/ buffer stationery by the printing agency.
- f) The approval of Supply Code is under the consideration of Hon'ble Commission therefore, no comment is needed by the Electricity Department.
- g) The Petitioner has responded to look into the matter appropriately in an expeditious manner.

Commission's View

Point wise views of the Commission are as follows:

- a) The Commission appreciates the Stakeholder's concerns regarding the turnaround time for completion of solar installation and release of subsidy and notes that M/s CREST is the nodal agency appointed for the same. The Commission directs the Petitioner to earnestly ensure that it fulfils its responsibilities as per Regulation 36 of extant JERC Grid Connected Solar Power Regulations 2015 in respect of granting permission to setup grid connected solar plant, site verification, sealing of bi-directional energy meter etc.
- b) The Commission notes the Stakeholder's concerns and informs that vide its order dated 29 December 2016, the Commission approved a Draft Solar Net Metering Agreement / Gross Metering Power Purchase Agreement (referred to as 'Model Solar PPA' hereafter) in response to Petition No. 200/2016 filed by the Petitioner. The approval for 'Model Solar PPA' was carried out by the Commission after considering comments invited and received from various stakeholder, which included M/s CREST and EWEDC among others. Notwithstanding the above, the extant JERC Grid Connected Solar Power Regulations 2015 provide that the suggestive PPA / Model Solar PPA can be modified to include Other Clauses mutually agreed to by the two parties.
- c) The Commission notes the Stakeholder's concerns and directs the Petitioner to act in accordance with the PPA signed between the two parties and the extant JERC Grid Connected Solar Power Regulations 2015, which vide Regulation 11(h) and Regulation 30(e) respectively state that Electricity Duty shall be payable on net energy imported / net power consumed from the grid. The Commission also directs the Petitioner to submit compliance report to the Commission, within 30 days of this Order.
- d) The Commission notes the Stakeholder's concerns and Petitioner's action taken in this regard. In the interest of transparency, the Commission directs the Petitioner to indicate the Regulatory Surcharge separately in the consumer bills, if already not done, in line with JERC Supply Code Regulations applicable from time to time and submit compliance report to the Commission, within 30 days of this Order.
- e) The Commission notes the Stakeholder's concerns and Petitioner's response in this regard. The Commission takes serious note of the Stakeholder's concern that stationery with tariff schedule as old as FY 2016-17 is being used in FY 2018-19 and directs the Petitioner to take prompt action post the issuance of Tariff Order for getting its billing related operations aligned in a timely manner.
- f) The Commission notes Stakeholder's concerns regarding notification of JERC (Supply Code) Regulations 2018 and informs that the same has been uploaded on the Commission's website.
- g) The Commission notes Stakeholder's concerns regarding inability of consumers to obtain Open Access and informs that according to JERC (Connectivity and Open Access in Intra-State Transmission and Distribution) Regulations, 2017 notified by the Commission on 14 March 2018, the Petitioner is required to submit a Detailed Procedure as per Regulation 3.4, within 60 days of notification of the said regulations. The Commission directs the Petitioner to act expeditiously and ensure that the procedure is formulated and submitted to Commission for approval within 10 days of this Order. The open access shall be made available to willing consumers latest by December 2018.

3. Chapter 3: Approval of the various components of the Business Plan Petition for the Multi-Year Control Period FY 2019-20 to FY 2021-22

3.1. Introduction

This chapter deals with the key aspects of the Business Plan Petition submitted by the Petitioner, and is structured as below.

- Forecast of Number of Consumers, Connected Load and Sales for the Control Period
- Intra-State Transmission and Distribution (T&D) loss
- Power Procurement Plan
- Capital Investment Plan
- Manpower Plan

In the subsequent sections, the Commission has recorded Petitioner's submissions and analysed the same. The Commission has subsequently recorded its reasoning while approving each of the components.

3.2. Forecast of Number of Consumers, Connected Load and Sales for the Control Period

3.2.1. Overall approach

Petitioner's submission

The Petitioner has chosen FY 2018-19 as the Base Year. The Petitioner has used past years' CAGR (upto FY 2016-17) and unaudited actual figures of FY 2017-18 to forecast the number of consumers, connected load and sales for FY 2018-19 (Revised Estimates) and the upcoming Control Period. The Petitioner has not considered the unaudited actual figures of FY 2017-18 for determining historical CAGRs. Due to abnormal trends in some categories, the Petitioner has resorted to using normalized CAGR rates or assuming a subjective rate for projections.

Summary of the past data, CAGR considered for each category and the projections for the upcoming MYT Control Period is as given below:

Table 5: Summary of category wise Number of Consumers and growth rate considered by the Petitioner for projections

No. of Consumers	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	CAGR			
Category	Actual	Actual	Actual	Actual	Actual	Actual	6 year	4 year	2 year	Considered
Domestic	1,70,364	1,72,549	1,74,407	1,83,211	1,88,375	1,91,436	2.36%	3.15%	1.62%	2.36%
Commercial	25,359	20,309	21,447	22,143	22,661	23,493	-1.52%	3.08%	3.67%	3.08%
Large Supply	104	101	105	108	103	99	-0.98%	-1.94%	-3.88%	0.00%
Medium Supply	1,076	1,116	1,154	1,197	1,255	1,288	3.66%	3.73%	2.63%	3.66%
Small Power	1,291	1,285	1,285	1,275	1,269	1,275	-0.25%	-0.26%	0.47%	0.47%
Agriculture	122	123	122	121	120	119	-0.50%	-0.83%	-0.83%	0.00%

No. of Consumers	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	CAGR			
	Actual	Actual	Actual	Actual	Actual	Actual	6 year	4 year	2 year	Considered
Public lighting	775	807	846	886	978	1,082	6.90%	8.55%	10.63%	6.90%
Bulk Supply	348	503	529	592	667	732	16.03%	11.43%	9.75%	9.75%
Others Temporary Supply	903	922	737	620	573	437	-13.51%	-15.99%	-23.73%	0.00%
Total	2,00,342	1,97,715	2,00,632	2,10,153	2,16,001	2,19,961				

Table 6: Summary of category wise Connected Load and growth rate considered by the Petitioner for projections

Connected Load (kW)	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	CAGR			
	Actual	Actual	Actual	Actual	Actual	Actual	6 year	4 year	2 year	Considered
Domestic	658,690	731,236	773,459	794,926	818,172	850,347	5.24%	3.21%	3.93%	3.93%
Commercial	318,272	326,156	360,348	383,574	400,437	424,746	5.93%	5.63%	6.07%	5.63%
Large Supply	65,763	64,023	69,671	71,762	71,904	70,044	1.27%	0.18%	-2.59%	1.27%
Medium Supply	57,603	59,811	62,011	65,907	70,162	71,457	4.40%	4.84%	1.85%	4.40%
Small Power	18,652	18,754	19,015	19,268	19,364	19,565	0.96%	0.96%	1.04%	0.96%
Agriculture	675	707	715	722	737	748	2.08%	1.52%	1.49%	2.08%
Public lighting	5,455	5,583	5,791	5,956	6,243	6,660	4.07%	4.77%	6.68%	4.77%
Bulk Supply	30,378	41,303	41,299	41,464	41,916	42,454	6.92%	0.92%	1.28%	1.28%
Others Temporary Supply	27,840	5,672	4,229	3,510	3,250	2,480	-38.35%	-16.30%	-23.69%	0.00%
Total	1,183,328	1,253,245	1,336,538	1,387,089	1,432,185	1,488,501				

Table 7: Summary of category wise Sales and growth rate considered by the Petitioner for projections

Sales (MU)	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	CAGR			
	Actual	Actual	Actual	Actual	Actual	Actual	6 year	4 year	2 year	Considered
Domestic	525.79	586.54	608.24	655.38	658.50	721.70	6.54%	5.87%	9.60%	6.54%
Commercial	417.36	397.54	446.18	460.21	463.34	498.68	3.62%	3.78%	7.63%	3.78%
Large Supply	128.72	137.50	123.94	117.20	131.84	126.74	-0.31%	0.75%	-3.87%	0.75%
Medium Supply	103.71	103.84	104.53	103.58	110.94	116.08	2.28%	3.56%	4.63%	3.56%
Small Power	22.02	20.11	20.36	20.50	19.01	19.53	-2.38%	-1.38%	2.73%	2.73%
Agriculture	1.27	1.40	1.46	1.67	1.49	1.30	0.54%	-3.68%	-12.38%	0.54%
Public Lighting	17.45	21.98	21.20	21.67	22.50	21.83	4.59%	0.99%	-2.96%	4.59%
Bulk Supply	74.67	87.34	86.56	83.49	77.19	80.60	1.54%	-2.35%	4.42%	1.54%
Others Temporary Supply	10.50	8.79	7.68	7.97	6.52	4.98	-13.87%	-13.46%	-23.68%	0.00%
Total	1301.49	1365.04	1420.15	1471.67	1491.32	1591.43				

The Petitioner submitted projections of number of consumers, connected load and sales for the FY 2018-19 (Revised Estimates) and the upcoming MYT Control Period, using the CAGRs considered as above and FY 2017-18

(Unaudited Actual) data. The Petitioner in its response to Deficiency Notes, informed about a mistake in data for Domestic and Commercial categories for FY 2017-18 and submitted revised numbers for Number of Consumers and Connected Load for FY 2017-18. However, the Petitioner did not make a revised submission for its projections for Number of Consumers and Connected Load for FY 2018-19 and the Control Period. The correction in FY 2017-18 data has been effected in the data as given in the following tables:

Table 8: Petitioner's submission on projection of Number of Consumers for upcoming Control Period

No. of Consumers	2017-18	CAGR Considered	2018-19	2019-20	2020-21	2021-22
Category	Actual (Unaudited)		Estimated	Projected	Projected	Projected
Domestic	193,158	2.36%	197,716	202,382	207,157	212,046
Commercial	24,014	3.08%	24,755	25,518	26,305	27,116
Large Supply	97	0.00%	97	97	97	97
Medium Supply	1,305	3.66%	1,353	1,402	1,454	1,507
Small Power	1,281	0.47%	1,287	1,293	1,299	1,305
Agriculture	124	0.00%	124	124	124	124
Public Lighting	1,178	6.90%	1,259	1,346	1,439	1,538
Bulk Supply	616	9.75%	676	742	814	894
Others Temporary Supply	386	0.00%	386	386	386	386
Total	222,159		227,653	233,290	239,075	245,013

Table 9: Petitioner's submission on projection of Connected Load for upcoming Control Period

Connected Load (kW)	2017-18	CAGR Considered	2018-19	2019-20	2020-21	2021-22
Category	Actual (Unaudited)		Estimated	Projected	Projected	Projected
Domestic	878,183	3.93%	912,718	948,611	985,916	1,024,687
Commercial	431,705	5.63%	456,026	481,717	508,855	537,523
Large Supply	69,431	1.27%	70,312	71,205	72,109	73,024
Medium Supply	72,362	4.40%	75,549	78,877	82,351	85,979
Small Power	19,717	0.96%	19,906	20,098	20,291	20,485
Agriculture	843	2.08%	860	878	897	915
Public Lighting	6,767	4.77%	7,090	7,428	7,782	8,154
Bulk Supply	42,126	1.28%	42,667	43,214	43,769	44,331
Others Temporary Supply	2,191	0.00%	2,191	2,191	2,191	2,191
Total	1,523,325		1,587,320	1,654,219	1,724,160	1,797,288

Table 10: Petitioner's submission on projection of Sales for upcoming Control Period

Sales (MU)	2017-18	CAGR Considered	2018-19	2019-20	2020-21	2021-22
Category	Actual (Unaudited)		Projected	Projected	Projected	Projected
Domestic	731.94	6.54%	779.80	830.79	885.12	943.00
Commercial	494.02	3.78%	512.68	532.05	552.15	573.01
Large Supply	119.85	0.75%	120.75	121.65	122.56	123.47
Medium Supply	119.33	3.56%	123.57	127.97	132.52	137.23
Small Power	19.50	2.74%	20.03	20.58	21.14	21.72
Agriculture	1.43	0.54%	1.44	1.45	1.45	1.46
Public Lighting	17.73	4.58%	18.54	19.39	20.28	21.21
Bulk Supply	80.60	1.54%	81.84	83.10	84.38	85.68
Others Temporary Supply	4.40	0.00%	4.40	4.40	4.40	4.40

Sales (MU)	2017-18	CAGR Considered	2018-19	2019-20	2020-21	2021-22
Category	Actual (Unaudited)		Projected	Projected	Projected	Projected
Total	1,588.80		1,663.06	1,741.38	1,824.00	1,911.18

Commission's Analysis

The overall approach of the Commission for projecting the number of consumers, connected load and sales for FY 2018-19 and the upcoming MYT Control Period is described below:

- The Base Year considered by the Petitioner is FY 2018-19 and the same is in line with the JERC MYT Regulations. The Commission has also considered FY 2018-19 as the Base Year for carrying out projections. The values for FY 2018-19 have been arrived at by considering relevant growth rates approved by the Commission for respective categories and applying the same to FY 2017-18 values.
- The Growth rates considered by the Petitioner for projecting number of consumers, load and sales are primarily based on historical CAGRs (excluding the unaudited actual figures of FY 2017-18). The Commission has also considered the unaudited actual figures of FY 2017-18 for determining historical CAGRs. The Commission has determined Growth rates separately for each consumer category based on historical trends and other relevant parameters given below:
 - Year on year (YoY) growth
 - CAGR (multiple periods)
 - Specific (per-consumer) consumption
 - Specific sales per kW of connected load, wherever the number of consumers is low
 - Energy efficiency measures

3.2.2. Category-wise analysis

The historical Year on Year growth and CAGR for the number of consumers, connected load and sales are given in the tables below:

Table 11: Historical Year-on-Year growth and CAGR for Number of Consumers

No. of Consumers	YoY growth						CAGR		
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	6 year	4 year	3 year
Domestic	1.28%	1.08%	5.05%	2.82%	1.62%	0.90%	2.28%	1.78%	1.26%
Commercial	-19.91%	5.60%	3.25%	2.34%	3.67%	2.22%	3.41%	2.74%	2.94%
Large Supply	-2.88%	3.96%	2.86%	-4.63%	-3.88%	-2.02%	-0.80%	-3.52%	-2.96%
Medium Supply	3.72%	3.41%	3.73%	4.85%	2.63%	1.32%	3.18%	2.92%	1.97%
Small Power	-0.46%	0.00%	-0.78%	-0.47%	0.47%	0.47%	-0.06%	0.16%	0.47%
Agriculture	0.82%	-0.81%	-0.82%	-0.83%	-0.83%	4.20%	0.16%	0.82%	1.65%
Public Lighting	4.13%	4.83%	4.73%	10.38%	10.63%	8.87%	7.86%	9.96%	9.75%
Bulk Supply	44.54%	5.17%	11.91%	12.67%	9.75%	-15.85%	4.14%	1.33%	-3.90%
Others Temporary Supply	2.10%	-20.07%	-15.88%	-7.58%	-23.73%	-11.67%	-15.98%	-14.61%	-17.92%

Table 12: Historical Year-on-Year growth and CAGR for Connected Load

Connected Load (kW)	YoY growth						CAGR		
	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	6 year	4 year	3 year
Domestic	11.01%	5.77%	2.78%	2.92%	3.93%	3.27%	3.73%	3.38%	3.60%
Commercial	2.48%	10.48%	6.45%	4.40%	6.07%	1.64%	5.77%	4.02%	3.83%

Connected Load (kW)	YoY growth						CAGR		
Consumer Category	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	6 year	4 year	3 year
Large Supply	-2.65%	8.82%	3.00%	0.20%	-2.59%	-0.88%	1.64%	-1.09%	-1.73%
Medium Supply	3.83%	3.68%	6.28%	6.46%	1.85%	1.27%	3.88%	3.16%	1.56%
Small Power	0.55%	1.39%	1.33%	0.50%	1.04%	0.78%	1.01%	0.77%	0.91%
Agriculture	4.74%	1.13%	0.98%	2.08%	1.49%	12.70%	3.58%	5.30%	6.95%
Public Lighting	2.35%	3.73%	2.85%	4.82%	6.68%	1.61%	3.92%	4.35%	4.11%
Bulk Supply	35.96%	-0.01%	0.40%	1.09%	1.28%	-0.77%	0.40%	0.53%	0.25%
Others Temporary Supply	-79.63%	-25.44%	-17.00%	-7.41%	-23.69%	-11.65%	-17.32%	-14.54%	-17.89%

Table 13: Historical Year-on-Year growth and CAGR for Sales

Sales (MU)	YoY growth						CAGR		
Consumer Category	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	6 year	4 year	3 year
Domestic	11.55%	3.70%	7.75%	0.48%	9.60%	1.42%	4.53%	3.75%	5.43%
Commercial	-4.75%	12.24%	3.14%	0.68%	7.63%	-0.93%	4.44%	2.39%	3.26%
Large Supply	6.82%	-9.86%	-5.44%	12.49%	-3.87%	-5.44%	-2.71%	0.75%	-4.66%
Medium Supply	0.13%	0.66%	-0.91%	7.11%	4.63%	2.80%	2.82%	4.83%	3.71%
Small Power	-8.67%	1.24%	0.69%	-7.27%	2.74%	-0.15%	-0.61%	-1.65%	1.28%
Agriculture	10.24%	4.29%	14.38%	-10.78%	-12.75%	10.00%	0.42%	-5.04%	-2.03%
Public Lighting	25.96%	-3.55%	2.22%	3.83%	-2.98%	-18.78%	-4.21%	-6.47%	-11.23%
Bulk Supply	16.97%	-0.89%	-3.55%	-7.55%	4.42%	0.00%	-1.59%	-1.17%	2.18%
Others Temporary Supply	-16.29%	-12.63%	3.78%	-18.19%	-23.62%	-11.65%	-12.93%	-17.97%	-17.85%

The historical data given above, along with other parameters, as applicable, have been used for category wise analysis as described below.

Domestic

Petitioner's submission

The Petitioner has considered the CAGR of 6 years (FY 2011-12 to FY 2016-17) for projecting the number of consumers and sales and CAGR of 2 years (FY 2015-16 to FY 2016-17) for projecting the connected load. Accordingly, the Petitioner has used a growth rate of 2.36%, 6.54% and 3.93% for number of consumers, sales and connected load respectively.

Commission's analysis

The Commission observes that the YoY growth in number of consumers has been slowing down steadily since FY 2015-16. Therefore, the Commission is of the opinion that the 4-year CAGR of 1.78% more accurately represents the historical trends and hence approves the same for growth in number of consumers.

To project overall sales growth, the Commission has examined the trends of sales per consumer, and observed that the sales per consumer over the past 2 years has been around ~ 3800 units per consumer per annum. Based on the Petitioner's submission of CAGR of 6.54% for growth in sales, the CAGR of sales per consumer works out to 4.08% for the Control Period, increasing the per consumer sales from ~ 3790 units (actuals, FY 2017-18) to ~ 4450 units (projected, FY 2021-22) per annum. Considering the nature of domestic consumption and increased demand for energy efficient lighting and appliances under UJALA scheme, Commission does not expect that there would be a significant rise in consumption levels per consumer over the three years of the Control Period. Based on the analysis

above, the Commission believes that the 4-year CAGR of 1.94% for sales per consumer would be a more appropriate projection, increasing the sales per consumer to ~4090 units (projected, FY 2021-22). Therefore, the Commission opines that 4-year CAGR of 3.75% is more representative of the historical trends, and hence approves the same for growth in sales.

In respect of connected load, the Commission observes that the YoY growth rate has been stable since FY 2014-15 (in the range of 2.78% to 3.93%). Therefore, in view of the historical trends, the Commission approves 4-year CAGR of 3.38% for connected load. The summary of growth rates approved by the Commission is given below:

Table 14: Growth rates approved by the Commission for domestic category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Domestic	2.36%	1.78%	3.93%	3.38%	6.54%	3.75%

Commercial

Petitioner's submission

The Petitioner has considered the CAGR of 4 years (FY 2013-14 to FY 2016-17) of 3.08%, 3.78% and 5.63% for projecting growth in number of consumers, sales and connected load respectively as it smooths out the short-term fluctuations.

Commission's analysis

The Commission observes that the YoY growth in number of consumers has been stable since FY 2014-15 (in the range of 2.22% to 3.67%). Therefore, the Commission opines that 4-year CAGR of 2.74% more accurately represents the historical trends approves the same for projecting number of consumers.

To project overall sales growth, the Commission has examined the trends of sales per consumer, and observes that the sales per consumer over the past 5 years has been averaging around ~ 20,750 units per consumer per annum. Further, the Commission observes that both the 4-year and 5-year CAGRs for sales per consumer are flat / moderately negative. Based on the consistently stable sales per consumer trends, the Commission opines that sales per consumer would remain stable over the Control Period and consequently sales growth would follow the growth in number of consumers. Therefore, the Commission approves a CAGR of 2.74% for projecting sales, which is equal to the CAGR approved by the Commission for projecting number of consumers.

In respect of connected load, the Commission again observes that the YoY growth has been stable since FY 2014-15 (in the range of 4.40% to 6.45%), with the exception of FY 2017-18 when it was 1.64%. Therefore, the Commission opines that 4-year CAGR of 4.02% more accurately represents the historical trends and approves the same for projecting connected load. The summary of growth rates approved by the Commission is given below:

Table 15: Growth rates approved by the Commission for Commercial category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Commercial	3.08%	2.74%	5.63%	4.02%	3.78%	2.74%

Large Supply

Petitioner's submission

The Petitioner has considered the CAGR of 4 years (FY 2013-14 to FY 2016-17) i.e. 0.75% for projecting growth in sales and the CAGR of 6 years (FY 2011-12 to FY 2016-17) i.e. 1.27% for projecting growth in connected load. However, the Petitioner has assumed 0% growth for projecting growth in number of consumers as the trends show a consistent decline in the past.

Commission’s analysis

Considering the consistent decline in number of consumers over the last 7 years while maintaining a positive outlook, the Commission approves the Petitioner’s submission of 0% growth in respect of projection number of consumers. The Commission observes that connected load growth has been declining over the last 3 years. Therefore, the Commission opines that 0% growth is appropriate for projecting connected load as well and hence approves the same.

For projecting sales growth, the Commission has analyzed sales per kW of connected load and observes that sales per kW of connected load has been declining over the last 3 years with a CAGR of -2.97%. The Commission opines that for maintaining a positive outlook, there won’t be any further reduction in sales per kW of connected load. Therefore, in line with the projection for connected load, the Commission approves a CAGR of 0% for projecting sales. The summary of growth rates approved by the Commission is given below:

Table 16: Growth rates approved by the Commission for Large Supply category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Large Supply	0.00%	0.00%	1.27%	0.00%	0.75%	0.00%

Medium Supply

Petitioner’s submission

The Petitioner has considered the CAGR of 6 years (FY 2011-12 to FY 2016-17) for projecting the number of consumers and connected load and CAGR of 4 years (FY 2013-14 to FY 2016-17) for projecting sales. Accordingly, the Petitioner has used a growth rate of 3.66%, 4.40% and 3.56% for number of consumers, connected load and sales respectively.

Commission’s analysis

The Commission observes that the YoY growth in number of consumers has been slowing down since FY 2015-16. Therefore, the Commission is of the opinion that the 4-year CAGR of 2.92% more accurately represents the historical trends. In respect of connected load, the Commission again observes a significant slowdown in growth since FY 2015-16 and hence approves the 4-year CAGR of 3.16% for projecting connected load.

The Commission observes that though the growth in sales has been similarly declining since FY 2015-16, a significant YoY growth of 7.11% in FY 2015-16 over FY 2014-15 is inflating the 4-year CAGR. The YoY growth for other years has been in the range of -0.9% to 4.6%. The Commission also observes that as per Petitioner’s projections, the sales per kW is seen declining from to ~1649 in FY 2017-18 to ~1596 in FY 2021-22, even though the historical trends over the past 4 years show an increasing trend. Therefore, the Commission approves the 3-year CAGR of 3.71% for projecting sales. The summary of growth rates approved by the Commission is given below:

Table 17: Growth rates approved by the Commission for Medium Supply category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Medium Supply	3.66%	2.92%	4.40%	3.16%	3.56%	3.71%

Small Power

Petitioner’s submission

The Petitioner has considered the CAGR of 2 years (FY 2015-16 to FY 2016-17) for projecting the number of consumers and sales. Further, for forecasting connected load, the Petitioner has considered a CAGR of 4 years (FY

2013-14 to FY 2016-17). Accordingly, the Petitioner has used a growth rate of 0.47%, 0.96% and 2.74% for number of consumers, connected load and sales respectively.

Commission's analysis

The Commission observes that growth in number of consumers and connected load has been stable in the past. Therefore, the Commission approves the 4-year CAGR of 0.16% and 0.77% for projecting number of consumers and connected load respectively. In respect of sales, the Commission observes that the growth has been varying over the years, with a 4-year CAGR of -1.65%. However, the Commission does not expect the sales per kW of connected load to fall further from current stagnant levels of ~990. Therefore, the Commission approves the 3-year CAGR of 1.28% for projecting sales. The summary of growth rates approved by the Commission is given below:

Table 18: Growth rates approved by the Commission for Small Power category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Small Power	0.47%	0.16%	0.96%	0.77%	2.74%	1.28%

Agriculture

Petitioner's submission

The Petitioner has considered the CAGR of 6 years (FY 2011-12 to FY 2016-17) for projecting sales and connected load. Further, for forecasting number of consumers, the Petitioner has considered normalised CAGR of 0% due to consistent decline in the number of consumers in the past. Accordingly, the Petitioner has used a growth rate of 0.00%, 2.08% and 0.54% for number of consumers, connected load and sales respectively.

Commission's analysis

The Commission agrees with the Petitioner's submission of 0% CAGR for projecting number of consumers as its growth rate has been consistently declining since FY 2013-14 (with the exception of FY 2017-18) and hence approves the same. In respect of connected load, the Commission observes that a significant YoY growth in FY 2017-18 (12.7%) is inflating the multi-period CAGR values. Therefore, the Commission opines that the CAGR of 6 years (FY 2011-12 to FY 2016-17) i.e. 2.08% considered by the Petitioner is prudent and hence approves the same.

The Commission has also analyzed that YoY sales per kW of connected load has been falling consistently from ~2313 (FY 2014-15) to 1696 (FY 2017-18). Further, the Commission does not expect sales per kW of connected to fall further and expects it to remain stable for the upcoming Control Period. Therefore, the Commission approves a CAGR of 2.08% for projecting sales, which is equal to the load growth approved by the Commission. The summary of growth rates approved by the Commission is given below:

Table 19: Growth rates approved by the Commission for Agriculture category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Agriculture	0.00%	0.00%	2.08%	2.08%	0.54%	2.08%

Public Lighting

Petitioner's submission

The Petitioner has considered the CAGR of 6 years (FY 2011-12 to FY 2016-17) for projecting the number of consumers and sales. Further, the Petitioner has based its forecast of connected load on CAGR of 4 years (FY 2013-14 to FY 2016-17). Accordingly, the Petitioner has used a growth rate of 6.90%, 4.77% and 4.59% for number of consumers, connected load and sales respectively.

Commission's analysis

The Commission opines that the high YoY growth rates observed in number of consumers over the past 3 years (in the range of ~8.9% to ~10.6%) is not sustainable. Therefore, the Commission approves the 6-year CAGR of 7.86% for projecting number of consumers. In respect of connected load, the Commission observes that the YoY growth rates have been stable in the past. Therefore, the Commission approves the 4-year CAGR of 4.35% for projecting connected load.

The Commission observes that even though both number of consumers and connected load have been growing over the past 5 years, the sales has been on a declining trend. Further, the Commission observes that sales have shown a YoY decline of ~19% in FY 2017-18 and sales per kW of connected load has been significantly declining in the last 3 years (in the range of ~-10.4% to ~-20.1%), which may be primarily attributed to adoption of energy efficient lighting. Therefore, the Commission does not expect any more growth in sales for the upcoming Control Period and approves a CAGR of 0%. The summary of growth rates approved by the Commission is given below:

Table 20: Growth rates approved by the Commission for Public Lighting category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Public Lighting	6.90%	7.86%	4.77%	4.35%	4.59%	0.00%

Bulk Supply

Petitioner's submission

The Petitioner has considered the CAGR of 2 years (FY 2015-16 to FY 2016-17) for projecting the number of consumers and connected load. However, for forecasting sales, the Petitioner has considered a CAGR of 6 years (FY 2011-12 to FY 2016-17). Accordingly, the Petitioner has used a growth rate of 9.75%, 1.28% and 1.54% for number of consumers, connected load and sales respectively.

Commission's analysis

The Commission observes that the steep decline in number of consumers (-15.85%) in FY 2017-18 is an outlier. Excluding FY 2017-18, the YoY growth from FY 2013-14 to FY 2016-17 is in the range of 5.17% to 12.67%. Therefore, the Commission approves the CAGR of 9.75% considered by the Petitioner for growth in number of consumers. In respect of connected load, the Commission observes that the YoY growth rates have been stable over the years. Therefore, the Commission opines that the 4-year CAGR of 0.53% in load growth is representative of the historical trends and hence approves the same. Further, the Commission observes that sales per kW of connected load has been moderately increasing over the last 3 years from ~1842 (FY 2015-16) to ~1913 (FY 2017-18). Therefore, the Commission opines that the 3-year CAGR of 2.18% is a prudent assumption for projecting sales, and hence approves the same. The summary of growth rates approved by the Commission is given below:

Table 21: Growth rates approved by the Commission for Bulk Supply category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Bulk Supply	9.75%	9.75%	1.28%	0.53%	1.54%	2.18%

Temporary Supply

Petitioner's submission

The Petitioner has not assumed any growth (0% CAGR) for projecting number of consumers, connected load and sales as temporary supply does not follow any particular pattern.

Commission's analysis

The Commission agrees with the Petitioner's assessment and hence approves the Petitioner's submission.

Table 22: Growth rates approved by the Commission for Temporary Supply category

Consumer Category	Growth in no. of consumers		Load growth		Sales growth	
	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved	CAGR submitted	CAGR approved
Temporary Supply	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

3.2.3. Consumer growth projections approved by the Commission

The summary of the revised estimates for number of consumer for the Base Year and the projections for the upcoming Control Period based on CAGR approved by the Commission is given below:

Table 23: Consumer growth projections approved by the Commission for the upcoming Control Period

Number of Consumers	CAGR Approved	Revised Estimate	Approved Projections		
		Base Year	Control Period		
Consumer Category		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Domestic	1.78%	196,596	200,095	203,657	207,282
Commercial	2.74%	24,672	25,348	26,043	26,757
Large Supply	0.00%	97	97	97	97
Medium Supply	2.92%	1,343	1,382	1,422	1,464
Small Power	0.16%	1,283	1,285	1,287	1,289
Agriculture	0.00%	124	124	124	124
Public Lighting	7.86%	1,271	1,371	1,479	1,595
Bulk Supply	9.75%	676	742	814	893
Others Temporary Supply	0.00%	386	386	386	386
Total		226,448	230,830	235,309	239,887

3.2.4. Load growth projections approved by the Commission

The summary of the revised estimates for connected load for the Base Year and the projections for the upcoming Control Period based on CAGR approved by the Commission is given below:

Table 24: Load growth projections approved by the Commission for the upcoming Control Period

Connected Load (kW)	CAGR Approved	Revised Estimate	Approved Projections		
		Base Year	Control Period		
Consumer Category		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Domestic	3.38%	907,866	938,552	970,275	1,003,070
Commercial	4.02%	449,060	467,112	485,890	505,423
Large Supply	0.00%	69,431	69,431	69,431	69,431
Medium Supply	3.16%	74,649	77,008	79,441	81,951
Small Power	0.77%	19,869	20,022	20,176	20,331
Agriculture	2.08%	861	879	897	916
Public Lighting	4.35%	7,061	7,368	7,689	8,023
Bulk Supply	0.53%	42,349	42,573	42,799	43,026
Others Temporary Supply	0.00%	2,191	2,191	2,191	2,191
Total		1,573,337	1,625,136	1,678,789	1,734,362

3.2.5. Sales growth projections approved by the Commission

The summary of the revised estimates for sales for the Base Year and the projections for the upcoming Control Period based on CAGR approved by the Commission is given below:

Table 25: Sales growth projections approved by the Commission for the upcoming Control Period

Sales (MU)	CAGR Approved	Revised Estimate	Approved Projections		
		Base Year	Control Period		
Consumer Category		FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22
Domestic	3.75%	759.39	787.86	817.41	848.06
Commercial	2.74%	507.56	521.46	535.75	550.43
Large Supply	0.00%	119.85	119.85	119.85	119.85
Medium Supply	3.71%	123.76	128.35	133.11	138.05
Small Power	1.28%	19.75	20.00	20.26	20.52
Agriculture	2.08%	1.46	1.49	1.52	1.55
Public Lighting	0.00%	17.73	17.73	17.73	17.73
Bulk Supply	2.18%	82.36	84.15	85.99	87.86
Others Temporary Supply	0.00%	4.40	4.40	4.40	4.40
Total		1,636.25	1,685.30	1,736.02	1,788.45

3.3. Intra-state T&D losses

Petitioner's submission

The actual T&D losses incurred by the Petitioner in the last 3 years is as given below:

Table 26: Actual T&D losses (%)

FY 2015-16	FY 2016-17	FY 2017-18
15.24%	13.65%	9.51%

The Petitioner has submitted that the sharp fall in T&D losses in the FY 2017-18 is because of the following factors:

- There has been an increase in energy sale through UI / exchange from 36.76 MUs in FY 2016-17 to 131.74 MUs in FY 2017-18
- The excess energy sale was due to return of 48 MUs towards banked units to J&K during the FY 2017-18 against energy received in the FY 2015-16 & FY 2016-17 and sale of excess power through UI/exchange during different intervals of time
- The figures of T&D loss are provisional & unaudited. Final audited figure shall be submitted after completion of audit

Accordingly, the Petitioner has proposed the T&D loss trajectory for the upcoming Control Period based on the actual T&D loss incurred in FY 2016-17 i.e. 13.65%.

Table 27: T&D loss (%) trajectory proposed by the Petitioner for the upcoming Control Period

Projections		
FY 2019-20	FY 2020-21	FY 2021-22
13.05%	12.85%	12.65%

Commission's analysis

The T&D losses approved by the Commission in the current Control Period vis-à-vis T&D losses achieved by the Petitioner during the same period is given below:

Table 28: T&D losses approved by the Commission in the current Control Period vis-à-vis T&D losses achieved by the Petitioner

	T&D loss (%)	
	Approved	Actuals (A)/ Estimate (E)
FY 2016-17	13.25%	13.65% (A)
FY 2017-18	12.75%	9.51% (A)
FY 2018-19	12.25%	13.25%(E)

The Commission notes that the Petitioner has estimated FY 2018-19 T&D loss to be higher than that achieved in FY 2017-18. The Commission also notes the Petitioner's submissions in respect of T&D loss achieved in FY 2017-18, including the fact that these are unaudited / provisional figures. The Petitioner had raised its inability to reduce T&D losses further below 13.65% achieved in FY 2016-17 in its Tariff Petition for ARR of FY 2018-19 and reiterated the same vide its Review Petition No. 257/2018. The fact that the Petitioner has been able to reduce the T&D losses to 9.51% within one year i.e. FY 2017-18, though unaudited, is highly appreciated by the Commission and cannot be ignored while setting the T&D loss trajectory for the upcoming Control Period, as submitted by the Petitioner. Therefore, the Commission has considered the actual T&D loss (unaudited) of 9.51% for FY 2017-18 and has accordingly set the T&D loss target of 9.40% for the first year of the Control period i.e. FY 2019-20, with reduction of 10 basis points for each subsequent year. However, as an exception given the doubts expressed by the Petitioner about its own unaudited T&D loss, the Commission directs the Petitioner to submit the final audited figure of T&D losses for FY 2017-18 within 30 days of this Order or along with the MYT Petition, whichever is earlier, for Commission's consideration.

Accordingly, the Commission approves the T&D loss trajectory as follows:

Table 29: Intra-State T&D loss trajectory approved by the Commission

	FY 2019-20		FY 2020-21		FY 2021-22	
	Petitioner's submission	Approved by Commission	Petitioner's submission	Approved by Commission	Petitioner's submission	Approved by Commission
Intra-State T&D loss trajectory (%)	13.05%	9.40%	12.85%	9.30%	12.65%	9.20%

3.4. Power Procurement Plan

3.4.1. Energy Requirement

Petitioner's submission

The Petitioner has submitted the projection of energy requirement at periphery by grossing up the sales projections with distribution loss trajectory proposed by the Petitioner. The summary of the energy requirement as estimated by the Petitioner is as given below:

Table 30: Energy requirement proposed by the Petitioner

Particulars	FY 2019-20	FY 2020-21	FY 2021-22
Energy Requirement			
Energy Sales (MUs)	1,741.38	1,824.00	1,911.17
T&D Loss	13.05%	12.85%	12.65%
T&D Loss (MUs)	261.36	268.94	276.78
Total Energy Required at UT Periphery (MUs)	2,002.73	2,092.94	2,187.95

Commission's analysis

Based on the sales projections approved by the Commission in *Table 25* and the T&D losses approved by the Commission in *Table 29*, the energy requirement at UT periphery and the total energy input estimated by the Commission for the upcoming Control Period is given in the following table:

Table 31: Energy requirement at UT periphery and total energy input approved by the Commission

Particulars (MU)	Revised Estimate	Approved Projections		
	FY 2018-19 ¹	FY 2019-20	FY 2020-21	FY 2021-22
Sales within UT (A)	1636.25	1685.30	1736.02	1788.45
T&D Losses in % (B)	13.25%	9.40%	9.30%	9.20%
Energy Required at UT periphery (C = A/(1-B))	1886.16	1860.16	1914.02	1969.66
Power to be procured from Gross/NET Metering Mode within UT periphery (D)	17.73 ³	29.23	34.23	39.23
Total energy requirement at UT periphery (E = C-D)	1868.44	1830.93	1879.79	1930.43

3.4.2. Power Purchase Quantum

Petitioner's submission

The Petitioner has made the following assumptions for projecting the quantum of power purchase for the upcoming Control Period:

- **Allocation from CGS:** The firm allocation and allocation from the unallocated quota from the central generating stations has been considered based on the allocation issued by the Northern Regional Power Committee against the Ministry of Power letter No. NRPC/OPR/103/02/2018/7358-7383 dated 22.06.2018. The Petitioner expects the allocations from various central generating stations to remain the same over the upcoming Control Period.
- **NTPC, NHPC, NPCIL, SJVNL and THDC plants:** The net energy available from the generating stations of SJVNL has been estimated by considering average availability for past three years. Further, actual draws for the FY 2017-18 and 1st quarter of the FY 2018-19 has been taken as base for projecting the availability during the Control Period
- **BBMB plants:** The UT of Chandigarh has been allocated fix quota of 1 LU and 10 LU per day from the BBMB plant. In addition to that 3.5% of the plant capacity has been allocated to the UT of Chandigarh. The net energy available from the generating stations of BBMB has been estimated by considering actual draws for the FY 2017-18 and 1st quarter of the FY 2018-19 as base and projection has been done accordingly for the control period.
- **Inter-State transmission losses:** The Petitioner has considered 3.60% Inter-State transmission losses

Based on the above inputs and assumptions, the power allocation from central generation stations assumed by the Petitioner and the Petitioner's projections for availability of power from tie-up sources are as given in tables below:

Table 32: Power allocation from central generation stations assumed by the Petitioner

Sl. No.	Organization	Name of Project	Type	Capacity (In MW)	Total Avg. Entitlement (In %)	Entitlement (In MW)
1	NTPC	Anta	Gas	419	1.19	4.99
2		Auraiya	Gas	663	0.75	4.97
3		Dadri GPP	Gas	830	0.61	5.06
4		Dadri II TPP	Coal	980	0.22	2.11
5		Kahalgaoon II	Coal	1,500	0.20	3.00
6		Rihand I	Coal	1,000	1.00	10.00
7		Rihand II	Coal	1,000	0.80	8.00
8		Rihand III	Coal	1,000	0.55	5.45
9		Singrauli	Coal	2,000	0.20	4.00
10		Unchahar I	Coal	420	0.48	2.02

¹ The values for FY 2018-19 shown here are revised estimates made by the Commission, used only for the purpose of projections for the Control Period

Sl. No.	Organization	Name of Project	Type	Capacity (In MW)	Total Avg. Entitlement (In %)	Entitlement (In MW)
11		Unchahar II	Coal	420	0.71	2.98
12		Unchahar III	Coal	210	0.48	1.01
13		Jhajjar (APCPL)	Coal	1,500	0.43	6.45
14		Koldam	Hydel	800	0.79	6.32
15	NHPC	Chamera I	Hydel	540	3.90	21.06
16		Chamera II	Hydel	300	0.67	2.01
17		Chamera III	Hydel	231	0.60	1.39
18		Dhauliganga	Hydel	280	0.72	2.02
19		Dulhasti	Hydel	390	0.47	1.83
20		Parbathi III	Hydel	520	0.60	3.12
21		Salal	Hydel	690	0.27	1.86
22		Sewa II	Hydel	120	0.83	1.00
23		Tanakpur	Hydel	94	1.28	1.20
24		Uri-I	Hydel	480	0.62	2.98
25		Uri II	Hydel	240	0.63	1.52
26	NPCIL	NAPP	Nuclear	440	1.14	5.02
27		RAPP (#3 and #4)	Nuclear	66	3.18	2.10
28		RAPP(#5 and #6)	Nuclear	440	0.68	2.99
29	SVNVL	NATHPA JHAKRI	Hydel	1,500	0.53	7.95
30		RAMPUR	Hydel	137	0.79	1.08
31	BBMB	BBMB 3.5%	Hydel	1,325	3.50	46.38
32		BBMB 1 LU	Hydel	1 LU per day		
33		BBMB 10 LU	Hydel	10 LU per day		
34		PONG	Hydel	396	3.50	13.86
35		DEHAR	Hydel	990	3.50	34.65
36	THDC	Koteshwar	Hydel	400	0.36	1.44
37		Tehri	Hydel	1,000	0.60	6.00
	TOTAL					227.80

Table 33: Power purchase plan proposed by the Petitioner for the upcoming MYT Control Period

Sl. No.	Name of Plant	Projections (in MU)		
		FY 2019-20	FY 2020-21	FY 2021-22
	NTPC Stations			
1	Anta	4.75	4.75	4.75
2	Auraiya	2.51	2.51	2.51
3	Dadri GPP	24.49	24.49	24.49
4	Dadri II TPP	12.30	12.30	12.30
5	Kahalgaon II	23.30	23.30	23.30
6	Rihand I	79.32	79.32	79.32
7	Rihand II	66.37	66.37	66.37
8	Rihand III	52.37	52.37	52.37

Sl. No.	Name of Plant	Projections (in MU)		
		FY 2019-20	FY 2020-21	FY 2021-22
9	Singrauli	22.71	22.71	22.71
10	Unchahar I	15.06	15.06	15.06
11	Unchahar II	22.84	22.84	22.84
12	Unchahar III	11.24	11.24	11.24
13	Unchahar IV	2.79	2.79	2.79
14	Jhajjar (Aravali)	54.77	54.77	54.77
15	Koldam	41.64	41.64	41.64
	NHPC Stations			
16	Chamera I	88.45	88.45	88.45
17	Chamera II	29.70	29.70	29.70
18	Chamera III	18.13	18.13	18.13
19	Dhauliganga	21.45	21.45	21.45
20	Dulhasti	37.14	37.14	37.14
21	Parbathi III	12.55	12.55	12.55
22	Salal	8.31	8.31	8.31
23	Sewa II	9.66	9.66	9.66
24	Tanakpur	3.94	3.94	3.94
25	Uri-I	14.01	14.01	14.01
26	Uri II	17.14	17.14	17.14
	NPCIL Stations			
27	NAPP	76.12	76.12	76.12
28	RAPP (#3 and #4)	20.48	20.48	20.48
29	RAPP(#5 and #6)	71.87	71.87	71.87
	SJVNL Stations			
30	NATHPA JHAKRI	91.90	91.90	91.90
31	RAMPUR (U Q)	13.85	13.85	13.85
	BBMB			
32	BBMB 3.5 %	560.38	560.38	560.38
33	BBMB 1 LU	83.57	83.57	83.57
34	BBMB 10 LU	23.18	23.18	23.18
	THDC Stations			
35	Koteshwar	13.97	13.97	13.97
36	Tehri	164.62	164.62	164.62
	Others			
37	CREST	3.78	3.78	3.78
38	Pvt. Solar	0.86	0.86	0.86
39	Bilateral/Exchange/UI	246.65	336.86	431.87
	Annual Total	2,068.13	2,158.34	2,253.35

Commission's Analysis

The Commission has employed the following approach and assumptions to forecast the power purchase from tied-up sources for the upcoming Control Period:

- **Allocation from CGS:** The Commission has considered the firm allocation and allocation from the unallocated quota from the central generating stations based on the allocation issued by the Northern Regional Power Committee vide letter no. NRPC/Comml/201/REA/2018/10199-10237 dated 04.09.2018. The same share of allocation has been assumed for all the years of the upcoming Control Period. For BBMB plants, the Commission has considered the allocation as per the Petitioner's submission.
- **Plant Load Factor (PLF):**
 - **NTPC, NPCIL:** Average of PLF for previous four years and 5 months of FY 2018-19, obtained from CEA's Monthly Generation Overview Report.
 - **NHPC, SJVNL, BBMB, THDC:** Average of PLF for previous four years and 5 months of FY 2018-19, derived from dividing actual generation data obtained from CEA's Monthly Generation Overview Report with target generation.
- **Auxiliary Consumption:** The Commission has considered the Auxiliary consumption based on normative auxiliary consumption allowed in Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014. Accordingly, auxiliary consumption of 7.75%, 2.50% and 1.20% is considered for coal, gas and hydropower plants respectively. However, for nuclear generation power plants, the auxiliary consumption has been assumed as 10%.
- **Inter-State transmission losses:** The Commission has considered Inter-State transmission losses as 3.60% for all years of the upcoming Control Period.
- **Renewable Sources:** The Commission observes that the Petitioner has projected only 4.64 MUs for each year of the Control Period, despite projecting much higher solar procurement from Gross/Net metering mode while submitting the RPO trajectory. The power procurement from renewable sources under the Gross/Net metering mode within the UT periphery has therefore been projected as discussed in details in the section on RPO.

The quantum of power procurement projected by the Commission for the upcoming Control Period is given in the following table:

Approval of the various components of the Business Plan Petition

Table 34: Power purchase plan approved by the Commission for the upcoming MYT Control Period

Sr. No.	Source	Capacity (MW)	Weighted average allocation to Licensee		Avg. PLF (in %)	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MU)			
			%	MW					Revised Estimate	Approved Projections		
										2018-19 ²	2019-20	2020-21
A	Central Sector Power Stations											
I	NTPC	12,742		110.82		72,233.28		67,008.80	409.97	409.97	409.97	409.97
	Anta	419	2.99%	12.53	22.09%	810.80	2.50%	790.53	23.64	23.64	23.64	23.64
	Auraiya	663	2.53%	16.77	6.13%	356.02	2.50%	347.12	8.78	8.78	8.78	8.78
	Dadri GPP	830	2.45%	20.34	23.50%	1,708.64	2.50%	1,665.92	40.82	40.82	40.82	40.82
	Dadri II TPP	980	0.03%	0.29	66.32%	5,693.61	7.75%	5,252.36	1.58	1.58	1.58	1.58
	Kahalgaon II	1,500	0.20%	3.00	76.25%	10,019.51	7.75%	9,243.00	18.49	18.49	18.49	18.49
	Rihand I	1,000	1.03%	10.30	83.49%	7,313.37	7.75%	6,746.59	69.49	69.49	69.49	69.49
	Rihand II	1,000	0.83%	8.30	83.49%	7,313.37	7.75%	6,746.59	56.00	56.00	56.00	56.00
	Rihand III	1,000	0.58%	5.80	83.49%	7,313.37	7.75%	6,746.59	39.13	39.13	39.13	39.13
	Singrauli	2,000	0.03%	0.60	84.20%	14,751.49	7.75%	13,608.25	4.08	4.08	4.08	4.08
	Unchahar I	420	0.49%	2.06	76.34%	2,808.63	7.75%	2,590.96	12.70	12.70	12.70	12.70
	Unchahar II	420	0.75%	3.15	76.34%	2,808.63	7.75%	2,590.96	19.43	19.43	19.43	19.43
	Unchahar III	210	0.51%	1.07	76.34%	1,404.31	7.75%	1,295.48	6.61	6.61	6.61	6.61
	Jhajjar (APCPL)(Indira Gandhi)	1,500	0.91%	13.65	49.71%	6,532.42	7.75%	6,026.16	54.84	54.84	54.84	54.84
	Koldam	800	1.62%	12.96	48.50%	3,399.09	1.20%	3,358.30	54.40	54.40	54.40	54.40
II	NHPC	3,885		78.32		18,949.78		18,722.38	356.95	356.95	356.95	356.95
	Chamera I	540	3.90%	21.06	55.25%	2,613.69	1.20%	2,582.32	100.71	100.71	100.71	100.71
	Chamera II	300	2.82%	8.46	69.47%	1,825.67	1.20%	1,803.76	50.87	50.87	50.87	50.87
	Chamera III	231	2.39%	5.53	54.15%	1,095.75	1.20%	1,082.60	25.90	25.90	25.90	25.90
	Dhauliganga	280	2.51%	7.03	43.08%	1,056.55	1.20%	1,043.87	26.20	26.20	26.20	26.20
	Dulhasti	390	2.26%	8.81	70.42%	2,405.68	1.20%	2,376.81	53.72	53.72	53.72	53.72
	Parbathi III	520	2.39%	12.43	16.22%	738.68	1.20%	729.81	17.44	17.44	17.44	17.44
	Salal	690	0.27%	1.86	61.67%	3,727.41	1.20%	3,682.68	9.94	9.94	9.94	9.94
	Sewa II	120	2.62%	3.14	50.76%	533.54	1.20%	527.14	13.81	13.81	13.81	13.81
	Tanakpur	94	1.28%	1.20	55.11%	453.79	1.20%	448.34	5.74	5.74	5.74	5.74
	Uri-I	480	0.62%	2.98	73.55%	3,092.75	1.20%	3,055.63	18.94	18.94	18.94	18.94
	Uri II	240	2.42%	5.82	66.89%	1,406.29	1.20%	1,389.41	33.68	33.68	33.68	33.68
	NPCIL	946		28.86		6,941.63		6,247.47	190.74	190.74	190.74	190.74
	NAPP	440	2.88%	12.67	82.54%	3,181.58	10.00%	2,863.42	82.47	82.47	82.47	82.47
	RAPS (#3 and #4)	66	0.66%	0.44	84.83%	490.44	10.00%	441.40	2.93	2.93	2.93	2.93
	RAPS(#5 and #6)	440	3.58%	15.75	84.83%	3,269.61	10.00%	2,942.65	105.35	105.35	105.35	105.35

² The values for FY 2018-19 shown here are revised estimates made by the Commission, used only for the purpose of projections for the Control Period

Approval of the various components of the Business Plan Petition

Sr. No.	Source	Capacity (MW)	Weighted average allocation to Licensee		Avg. PLF (in %)	Gross Generation (MU)	Aux consumption (%)	Net Generation (MU)	Power Purchase (MU)			
			%	MW					Revised Estimate	Approved Projections		
										2018-19 ²	2019-20	2020-21
III	SJVNL	1,912		30.29		9,586		9,471	150.55	150.55	150.55	150.55
	NATHPA JHAKRI	1,500	1.72%	25.80	57.86%	7,602.30	1.20%	7,511.08	129.19	129.19	129.19	129.19
	RAMPUR	412	1.09%	4.49	54.96%	1,983.45	1.20%	1,959.65	21.36	21.36	21.36	21.36
IV	BBMB	2,711		94.89		9,893		9,774	342.09	342.09	342.09	342.09
	BBMB 3.5%	1,325	3.50%	46.38	44.44%	5,157.65	1.20%	5,095.76	178.35	178.35	178.35	178.35
	BBMB 10 LU - Pong	396	3.50%	13.86	39.18%	1,359.22	1.20%	1,342.91	47.00	47.00	47.00	47.00
	BBMB 1 LU - Dehar	990	3.50%	34.65	38.93%	3,375.81	1.20%	3,335.30	116.74	116.74	116.74	116.74
V	THDC	1,400		63.96		4,409.30		4,356.38	198.67	198.67	198.67	198.67
	Koteshwar	400	1.54%	6.16	36.19%	1,268.24	1.20%	1,253.02	19.30	19.30	19.30	19.30
	Tehri	1,000	5.78%	57.80	35.86%	3,141.06	1.20%	3,103.36	179.37	179.37	179.37	179.37
VI	Renewable Sources (RE) within UT periphery								17.73	29.23	34.23	39.23
	Solar (to be procured from Gross/ Net Metering mode)								17.73 ³	29.23	34.23	39.23
	Non-Solar								-	-	-	-
VII	Total (excluding Renewables) (A)								1,648.97	1,648.97	1,648.97	1,648.97
VIII	POWERGRID Losses											
	Transmission Loss (%)								3.60%	3.60%	3.60%	3.60%
	Transmission Loss (MU) (B)								59.36	59.36	59.36	59.36
IX	Total power available at UT periphery (excluding renewable procurement from Gross/ Net Metering mode within UT periphery) (C) = (A)-(B)								1,589.61	1,589.61	1,589.61	1,589.61
X	Total power available (including renewable procurement from Gross/ Net Metering mode within UT periphery) (C)+(RE)								1,607.34	1,618.84	1,623.84	1,628.84

³ Procurement from Gross/ Net Metering mode within UT periphery for FY 2018-19 has been projected using month wise actual data of FY 2017-18 and four months of FY 2018-19 (April to August). A more detailed description is provided in section 3.4.4 of this Order (Renewable Purchase Obligations)

3.4.3. Energy Balance

The energy balance proposed for FY 2018-19 and the upcoming Control Period as estimated by the Petitioner is as given below:

Table 35: Energy Balance proposed by the Petitioner

Particulars (MUs)	FY 2019-20	FY 2020-21	FY 2021-22
Energy Requirement			
Energy Sales	1,741.38	1,824.00	1,911.17
T&D Loss (%)	13.05%	12.85%	12.65%
T&D Loss	261.36	268.94	276.78
Total Energy Required at UT Periphery	2,002.73	2,092.94	2,187.95
Energy Available			
Units Procured	1,816.85	1,816.85	1,816.85
Inter-State Transmission Loss (%)	3.60%	3.60%	3.60%
Transmission Loss	65.41	65.41	65.41
Net Energy Available at UT Periphery	1,751.44	1,751.44	1,751.44
Power Available within UT			
Power procured from Gross/Net Metering Mode	4.64	4.64	4.64
Total Energy Available	1,756.08	1,756.08	1,756.08
Demand Supply (Gap)/ Surplus	(246.65)	(336.86)	(431.87)

The petitioner plans to cover the gap in energy availability through procurement from bilateral agreements / Energy Exchange/ UI.

Commission's Analysis

The energy balance for the upcoming Control Period based on the Commission's analysis is given below:

Table 36: Energy Balance approved by the Commission

Particulars (MU)	Revised Estimates	Approved Projections		
	FY 2018-19 ⁴	FY 2019-20	FY 2020-21	FY 2021-22
Energy Required				
Sales within UT (A)	1636.25	1685.30	1736.02	1788.45
T&D Losses in % (B)	13.25%	9.40%	9.30%	9.20%
Energy Required (C = A/(1-B))	1886.16	1860.16	1914.02	1969.66
Power to be procured from Gross/NET Metering Mode within UT periphery (D)	17.73	29.23	34.23	39.23
Total energy requirement at UT periphery (E = C-D)	1868.44	1830.93	1879.79	1930.43
Energy Available				
Energy available from tied up sources - Conventional (H)	1,648.97	1,648.97	1,648.97	1,648.97
Transmission loss in % (I)	3.60%	3.60%	3.60%	3.60%
Energy available at UT periphery excluding Renewables (J = H*(1-I))	1,589.61	1,589.61	1,589.61	1,589.61
(Deficit)/Surplus (K = J-E)	(278.83)	(241.32)	(290.18)	(340.83)

⁴ The values for FY 2018-19 shown here are revised estimates made by the Commission, used only for the purpose of projections for the Control Period

The Commission observes that Petitioner has a huge energy deficit ranging from 12.8% to 17.1% in the UT for the Control Period, subjecting the consumers to risk of power price fluctuations at the energy exchange. The Commission also observes that the Petitioner procured 9.2% of its power requirements from short-term sources (UI/DSM and PTC India Limited) in FY 2017-18, with 5.6% of that procurement coming from UI/DSM. In view of the above, the Commission directs the Petitioner to take measures expeditiously to ensure that a medium term or long-term arrangement is put in place to meet the huge deficit in power requirements.

3.4.4. Renewable Purchase Obligations

Petitioner's submission

The Petitioner has submitted that it plans to meet the Solar RPO partially from the purchase of solar power from rooftop projects within the UT of Chandigarh (both Net metering mode and Gross metering mode) while the balance solar obligation is planned to be met through purchase of Renewable Energy Certificates (REC).

Further, the Petitioner has submitted that in absence of any non-solar power plants within the UT of Chandigarh, the Non-Solar RPO compliance is planned to be met through purchase of non-solar REC.

Effective energy sales for the Petitioner excluding Hydro and the plan for meeting RPO submitted by the Petitioner is as given in tables below:

Table 37: Effective energy sales (excluding Hydro) submitted by the Petitioner for the upcoming MYT Control Period

Sl. No.	Particular	Formula	FY 2019-20	FY 2020-21	FY 2021-22
1	Energy Sales within UT (In MUs)	a	1,741.38	1,824.00	1,911.17
2	Hydro Power Purchase (In MUs)	b	1,253.57	1,253.57	1,253.57
3	Inter-State Loss	c	3.60%	3.60%	3.60%
4	Inter-State Loss (In MUs)	d=b*c	45.13	45.13	45.13
5	Intra-State Loss	e	13.05%	12.85	12.65%
6	Intra-State Loss (In MUs)	f=e*(b-d)	157.70	155.28	152.87
7	Hydro Power Consumed (In MUs)	g=b-d-f	1,050.74	1,053.16	1,055.57
8	Conventional Power Consumed (In MUs)	h=a-g	690.63	770.84	855.60

Table 38: RPO plan proposed by the Petitioner for the upcoming MYT Control Period

Particulars	FY 2019-20	FY 2020-21	FY 2021-22
Solar Obligation			
Solar RPO (%)	4.70%	6.10%	8.00%
Projected Sales (In MUs)	690.63	770.84	855.60
Total Power to be Procured to meet Solar Obligation (In MUs)	32.46	47.02	68.45
Power planned to procure from Gross & Net Metering Mode (In MUs)	29.23	34.23	39.23
RPO to be met with REC (In MUs)	3.23	12.79	29.22
Non Solar Obligation			
Non-Solar RPO (In %)	6.80%	8.00%	9.00%
Projected Sales (In MUs)	690.63	770.84	855.60
Total Power to be Procured to meet Non-solar Obligation (In MUs)	46.96	61.67	77.00

Commission's analysis

The Commission observes that Petitioner has projected to increase its solar procurement from 4.64 MUs in FY 2017-18 to 29.23 MUs in FY 2019-20. However, the Petitioner hasn't made any specific submission for FY 2018-19 projections of RPO compliance. Therefore, the Commission has projected the same for FY 2018-19 based on analysis of actual power procured through Gross/Net metering in each month of FY 2017-18 and first four months

of FY 2018-19. The Commission observes that the Petitioner has procured 3.74 MUs from CREST and 0.44 MUs from Pvt. Solar for the first four months of FY 2018-19. The Commission has accordingly projected the total procurement of 17.73 MUs for FY 2018-19 from Gross/ Net metering. In view of actual achievements during first four months of FY 2018-19, the Commission is of the view that the Petitioner should be able to achieve 29.23 MUs as projected for FY 2019-20.

The Commission expects the Petitioner to make all efforts to increase procurement from renewable sources. Furthermore, actual compliance in respect of the pending RPO would be reviewed at the time of true up of the respective years and supporting details such as purchase of RECs, bills from solar/non-solar plants for the respective years must be submitted during the MYT filing. In view of the sales projections approved by the Commission, approved plan for compliance with the RPO targets is as given below:

Table 39: RPO plan approved by the Commission

Particulars (MU)	Revised Estimate	Approved Projections		
	FY 2018-19 ⁵	FY 2019-20	FY 2020-21	FY 2021-22
Sales within UT (A)	1636.25	1685.30	1736.02	1788.45
Hydro Power Purchase (B)	1,102.66	1,102.66	1,102.66	1,102.66
Inter-State Loss in % (C)	3.60%	3.60%	3.60%	3.60%
Inter-State Loss (D= B*C)	39.70	39.70	39.70	39.70
Intra-State Loss in % (E)	13.25%	9.40%	9.30%	9.20%
Intra-State Loss in % (F = E*(B-D))	140.84	99.92	98.86	97.79
Hydro Power Consumed (G = B-D-F)	922.13	963.05	964.11	965.18
Conventional Power Consumed (H = A-G)	714.12	722.25	771.91	823.28
RPO Targets (%)	9.00%	11.50%	14.10%	17.00%
Solar % (I)	3.60%	4.70%	6.10%	8.00%
Non-Solar % (J)	5.40%	6.80%	8.00%	9.00%
RPO Targets	64.27	83.06	108.84	139.96
Solar (H*I)	25.71	33.95	47.09	65.86
Non-Solar (H*J)	38.56	49.11	61.75	74.10
RPO Compliance (Procurement and own generation)	17.73	29.23	34.23	39.23
Solar	17.73	29.23	34.23	39.23
Non-Solar	0.00	0.00	0.00	0.00
RPO Compliance (REC purchase)	46.54	53.83	74.61	100.73
Solar	7.98	4.72	12.86	26.63
Non-Solar	38.56	49.11	61.75	74.10

3.5. Capital Investment Plan

3.5.1. Details of capital expenditure and capitalisation

Summary of scheme wise capital expenditure and capitalisation

Petitioner's submission

⁵ The values for FY 2018-19 shown here are revised estimates made by the Commission, used only for the purpose of projections for the Control Period

The Petitioner has proposed various ongoing and new schemes for the upcoming Control Period. The summary of capital expenditure proposed by the Petitioner for the upcoming Control Period is as given in the following table:

Table 40: Capital expenditure plan proposed by the Petitioner for upcoming Control Period

Sl. No.	Scheme	Project Cost (INR Cr)	Proposed Capital Expenditure (INR Cr)			
			FY 2019-20	FY 2020-21	FY 2021-22	Total
66 kV Ongoing Schemes						
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with associated 66kV Line Bays at Raipur Kalan, Chandigarh.	11.03	4.26	-	-	4.26
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	9.74	3.90	-	-	3.90
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T-off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	3.12	1.10	-	-	1.10
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18	0.32	-	-	0.32
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	9.89	3.96	-	-	3.96
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	7.12	2.85	-	-	2.85
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	7.22	2.89	-	-	2.89
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	7.90	3.16	-	-	3.16
	Subtotal (A)	57.20	22.44	-	-	22.44
66 kV New Schemes						
B1	Replace the existing battery bank and battery charger	0.09	0.09	-	-	0.09
B2	Providing 66kV outgoing feeders from upcoming 220kV GIS Hallomajra, UT Chandigarh	76.00	19.00	34.00	23.00	76.00
B3	Replacement/ augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II	4.36	2.20	1.36	-	3.56
B4	Replacement/ augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I	1.38	1.00	0.38	-	1.38
B5	Providing 1x30MVA 66/11kV additional Power TF & Replacement of 14 Nos. MOCB	10.37	2.10	5.20	3.07	10.37
B6	Replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items	4.99	-	3.20	1.79	4.99
B7	Providing 2x20MVA, 66 / 11kV Gas Insulated Sub Station	27.29	-	16.37	10.92	27.29

Sl. No.	Scheme	Project Cost (INR Cr)	Proposed Capital Expenditure (INR Cr)			
			FY 2019-20	FY 2020-21	FY 2021-22	Total
B8	Providing GIS 2x20MVA, 66/11kV Power Transformer along with 66 kV associated 66 kV T/L	36.98	-	22.00	14.98	36.98
B9	Providing Hot Spare 16/20MVA, 66/11kV Power Transformer	2.50	-	1.50	1.00	2.50
B10	Conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable	7.37	-	4.42	2.95	7.37
	Subtotal (B)	171.33	24.39	88.43	57.71	170.53
11 kV Ongoing and New Schemes						
C1	General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters.	11.26	3.14	3.28	3.42	9.84
C2	Strengthening of Distribution Network by providing 11kV underground power distribution system.	8.91	2.82	3.34	1.63	7.79
C3	Providing and Augmentation of the LT O/H ACSR conductors	0.55	0.34	0.15	-	0.49
C4	Strengthening of Distribution Network by providing/ augmentation of 11/0.400kV, 1000/315/200/100 kVA Distribution Transformers along with ACB.	8.82	4.95	1.62	1.14	7.71
C5	Providing 11kV/LT Aerial Bunched Conductor	2.92	0.76	-	1.79	2.55
C6	Providing improved metering system, special tools, testing equipments, vehicle, skylift, safety devices, office equipment etc.	2.00	1.28	0.47	-	1.75
C7	Improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations including HT/LT Panels, ACB/OCB, Battery bank, CT/PT, HT/ LT Shunt Capacitors etc. on the existing distribution transformers.	21.24	2.98	9.47	6.11	18.56
C8	Miscellaneous such as Renovation of houses in Electricity Colony, Unforeseen Works etc.	6.07	2.00	1.80	1.50	5.30
C9	Smart Grid Project Under Sub-Division No. 5.	25.20	12.00	8.36	-	20.36
C10	Conversion of Existing Overhead HT/ LT Lines into underground Equipments of 11 kV I/D S/Stn. Including Street Light System in Sector 8, UT, Chandigarh on Turnkey Basis.	18.14	9.00	4.14	-	13.14
C11	The Smart Grid Project of whole Chandigarh is under approval by NSGM/MoP.	256.00	-	10.00	20.00	30.00
C12	Installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit. The estimate is approved and DNIT is under process.	0.82	-	0.82	-	0.82
	Subtotal (C)	361.93	39.27	43.45	35.59	118.31
	Total Expenditure (A+B+C)		86.10	131.88	93.30	311.28

The capitalisation schedule proposed by the Petitioner for the upcoming Control Period is as given in the following table:

Table 41: Capitalisation schedule proposed by the Petitioner for the upcoming Control Period

Sl. No.	Scheme	Proposed Capitalisation (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
66 kV Ongoing Schemes					
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with associated 66kV Line Bays at Raipur Kalan, Chandigarh.	11.03	-	-	11.03
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	9.74	-	-	9.74
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T -off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	3.12	-	-	3.12
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18	-	-	1.18
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	9.89	-	-	9.89
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	7.12	-	-	7.12
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	7.22	-	-	7.22
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	7.90	-	-	7.90
	Subtotal (A)	57.20			57.20
66 kV New Schemes					
B1	Replace the existing battery bank and battery charger	0.09			0.09
B2	Providing 66kV outgoing feeders from upcoming 220kV GIS Hallomajra, UT Chandigarh				0.00
B3	Replacement/ augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II		4.36		4.36
B4	Replacement/ augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I		1.38		1.38
B5	Providing 1x30MVA 66/11kV additional Power TF & Replacement of 14 Nos. MOCB			10.37	10.37
B6	Replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items			4.99	4.99
B7	Providing 2x20MVA, 66 / 11kV Gas Insulated Sub Station				0.00
B8	Providing GIS 2x20MVA, 66/11kV Power Transformer along with 66 kV associated 66 kV T/L				0.00
B9	Providing Hot Spare 16/20MVA, 66/11kV Power Transformer			2.50	2.50
B10	Conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable			7.37	7.37
	Subtotal (B)	0.09	5.74	25.23	31.06
11 kV Ongoing and New Schemes					
C1	General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters.	2.09	2.81	7.05	11.95

Sl. No.	Scheme	Proposed Capitalisation (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
C2	Strengthening of Distribution Network by providing 11kV underground power distribution system.	1.88	2.86	3.35	8.09
C3	Providing and Augmentation of the LT O/H ACSR conductors	0.22	0.13	-	0.35
C4	Strengthening of Distribution Network by providing/ augmentation of 11/0.400kV, 1000/315/200/100 kVA Distribution Transformers along with ACB.	3.30	1.39	2.36	7.05
C5	Providing 11kV/LT Aerial Bunched Conductor	0.51	-	3.69	4.20
C6	Providing improved metering system, special tools, testing equipments, vehicle, skylift, safety devices, office equipment etc.	0.85	0.40	-	1.25
C7	Improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations including HT/LT Panels, ACB/OCB, Battery bank, CT/PT, HT/ LT Shunt Capacitors etc. on the existing distribution transformers.	1.98	8.11	12.61	22.70
C8	Miscellaneous such as Renovation of houses in Electricity Colony, Unforeseen Works etc.	1.33	1.54	3.09	5.96
C9	Smart Grid Project Under Sub-Division No. 5.	-	25.20	-	25.20
C10	Conversion of Existing Overhead HT/ LT Lines into underground Equipments of 11 kV I/D S/Stn. Including Street Light System in Sector 8, UT, Chandigarh on Turnkey Basis.	-	18.14	-	18.14
C11	The Smart Grid Project of whole Chandigarh is under approval by NSGM/MoP.	-	-	-	0.00
C12	Installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit. The estimate is approved and DNIT is under process.	-	0.82	-	0.82
	Subtotal (C)	12.16	61.4	32.15	105.71
	Total Capitalisation (A+B+C)	69.45	67.14	57.38	193.97

Commission's analysis

The Commission has analysed actual achievement of capital expenditure of the Petitioner for 66 kV schemes and 11 kV schemes separately vis-à-vis the same approved by the Commission in the previous Business Plan Order⁶. The details for FY 2016-17 and FY 2017-18 is given in the following tables:

Table 42: Capital expenditure achieved by the Petitioner for 66 kV schemes vis-à-vis the same approved by the Commission in the previous Business Plan Order for FY 2016-17 and FY 2017-18

Particulars	FY 2016-17		FY 2017-18		Total	
	Approved	Actual	Approved	Actual	Approved	Actual
Capital Expenditure (INR Cr)	15.50	0.84	11.10	1.11	26.60	1.95

Table 43: Capital expenditure achieved by the Petitioner for 11 kV schemes vis-à-vis the same approved by the Commission in the previous Business Plan Order for FY 2016-17 and FY 2017-18

Particulars	FY 2016-17		FY 2017-18		Total	
	Approved	Actual	Approved	Actual	Approved	Actual
Capital Expenditure (INR Cr)	10.30	11.81	10.58	12.04	20.88	23.85

⁶ Approval of Business Plan For MYT Control Period FY 2016-17 To FY 2018-19' dated 28 December 2015

In respect of 66 kV schemes, the Commission observes that the Petitioner has achieved only 7.33% of approved capital expenditure for FY 2016-17 and FY 2017-18. In respect of 11 kV schemes, the Commission observes that the Petitioner has achieved 114.22% of the approved capital expenditure for FY 2016-17 and FY 2017-18.

The Commission also observes that the Petitioner has not informed the Commission regarding the execution and completion of the schemes undertaken by it in the existing Control Period on a quarterly basis. The Commission opines that Petitioner should do all efforts to ensure that it informs the Commission about the status of each scheme on a quarterly basis as per Clause 8.5 (f) of the JERC MYT Regulations:

“The Licensee shall submit a report for every quarter detailing the progress of the capital expenditure and capitalisation undertaken against that proposed in the Capital Investment Plan, on or before the last Day of the month succeeding the respective quarter for review by the Commission.”

If the Petitioner consistently fails to meet the approved capital expenditure and capitalisation during each quarter or if the Petitioner fails to provide the above reports on time, the Commission would be constrained to reduce the approved capital expenditure and capitalisation.

Overall approach of the Commission

In respect of ongoing schemes, the Commission has compared the capital expenditure and capitalisation submitted by the Petitioner with that approved by the Commission in its Business Plan Order dated 28 December 2015. Any discrepancies in the scheme wise estimated capital expenditure and capitalisation vis-à-vis that approved for FY 2018-19 have been factored in while determining the capital expenditure for the Control Period.

In respect of the proposed new schemes, the Commission has compared capital expenditure and capitalisation proposed by the Petitioner with DPRs submitted by the Petitioner along with the Business Plan petition and replies to Deficiency Notes. If the Petitioner has failed to submit the DPRs / Technical Clearance letters from CEA for any of the proposed scheme for the upcoming Control Period or the submitted proofs/details are missing the required information, the Commission has not approved any of the capital expenditure and capitalisation proposed for the said schemes. However, the Commission may make some exceptions, subject to Petitioner furnishing documents within 30 days of this Order. Based on the Petitioner’s submissions and the overall approach discussed herein, the scheme wise analysis of proposed capital expenditure plan by the Commission is as given in subsequent sections.

A1-A8. 66 kV - Ongoing scheme(s)

Petitioner’s submission

The Petitioner has submitted the following details with respect to capital expenditure for 66 kV ongoing schemes.

Table 44: Capital expenditure for 66 kV ongoing schemes proposed by the Petitioner for the upcoming MYT Control Period

Sl. No.	66 kV Ongoing Schemes	Total Exp. (INR Cr)
A1	Providing 66kV Transmission Line	11.03
Scheme Details	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn. along with associate 66kV Line Bays at Raipur Kalan, Chandigarh. Rationale: The scheme will help in improving service reliability to consumers of the area and will help meet JERC’s Standards of Performance.	
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station	9.74
Scheme Details	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan. Rationale: The scheme will help in improving service reliability to consumers of the area and will help meet JERC’s Standards of Performance.	
A3	Providing double circuit 66 kV overhead TL tussled monopoles	3.12
Scheme Details	Providing double circuit 66 kV overhead TL tussled monopoles from T-off point 60 proposed 66/11 kV Grid substation village Sarangpur ,UT Chandigarh.	

Sl. No.	66 kV Ongoing Schemes	Total Exp. (INR Cr)
	Rationale: The scheme is aimed at improving system reliability and system upgradation.	
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18
Scheme Details	A) Prov. Construction of Double Circuit 66kV overhead Transmission line on tubular monopoles from T-OFF Point to proposed 66kV G/S/Stn at Institutional Area in Village - Sarangpur, Chandigarh B) Prov. Construction of 2 Nos. Line Bays at 66/11kV G/S/Stn, Village - Sarangpur, Chandigarh.	
	Rationale: The scheme is aimed at improving system reliability and system upgradation.	
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn.	9.89
Scheme Details	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh.	
	Rationale: The scheme will help in improving service reliability to consumers of the area and will help meet JERC's Standards of Performance.	
A6	Up gradation of T/F capacity	7.12
Scheme Details	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	
	Rationale: The scheme will help in improving service reliability to consumers of the area and will help meet JERC's Standards of Performance.	
A7	Up gradation of existing 33kV S/Stn. To 66kV	7.22
Scheme Details	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	
	Rationale The scheme will help in improving service reliability to consumers of the area and will help meet JERC's Standards of Performance.	
A8	Providing 66 kV Transmission line with underground cable	7.90
Scheme Details	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station.	
	Rationale: The scheme will help in improving service reliability to consumers of the area and will help meet JERC's Standards of Performance.	

The capital expenditure proposed by the Petitioner for upcoming MYT Control Period is as given below:

Table 45: Capital expenditure proposed by the Petitioner for upcoming MYT Control Period – Ongoing 66 kV schemes

Sl. No.	66 kV Ongoing Schemes	Capital Expenditure (INR Cr)			
		Original Project Cost	Proposed		
			FY 2019-20	FY 2020-21	FY 2021-22
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with associated 66kV Line Bays at Raipur Kalan, Chandigarh.	11.03	4.26	-	-
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	9.74	3.90	-	-
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T-off point to proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	3.12	1.10	-	-
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18	0.32	-	-
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	9.89	3.96	-	-
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	7.12	2.85	-	-

Sl. No.	66 kV Ongoing Schemes	Capital Expenditure (INR Cr)			
		Original Project Cost	Proposed		
			FY 2019-20	FY 2020-21	FY 2021-22
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	7.22	2.89	-	-
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	7.90	3.16	-	-
	Total	57.20	22.44	-	-

The capitalisation for 66 kV ongoing schemes projected by the Petitioner for the upcoming MYT Control Period is as given below:

Table 46: Capitalisation for 66 kV ongoing schemes projected by the Petitioner for the upcoming MYT Control Period

Sl. No.	66 kV Ongoing Schemes	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with associated 66kV Line Bays at Raipur Kalan, Chandigarh.	11.03	-	-
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	9.74	-	-
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	3.12	-	-
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18	-	-
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	9.89	-	-
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	7.12	-	-
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	7.22	-	-
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	7.90	-	-
	Total	57.20		

Commission's analysis

The Commission has analyzed the project cost, actual expenditure till FY 2017-18 and estimated expenditure till FY 2018-19 for each of the ongoing 66 kV schemes, based on the data available in the previous Business Plan Order⁷ and additional data furnished by the Petitioner in response to the Deficiency Notes in the following table.

Table 47: Actual and estimated capital expenditure for 66 kV ongoing schemes up to FY 2018-19

Sl. No.	66 kV Ongoing Schemes	Capital Expenditure (INR Cr)					Estimated	Total Estimated
		Actual	Actual	Actual	Actual	Estimated		
		Up to FY 2014-15 ⁸	FY 2016-17 ⁹	FY 2017-18 ⁹	Actual Total	FY 2018-19 ⁹		
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with	-	-	0.16	0.16	-	0.16	

⁷ 'Approval of Business Plan For MYT Control Period FY 2016-17 To FY 2018-19' dated 28 December 2015

⁸ Capital expenditure done till FY 2014-15 from 'Approval of Business Plan For MYT Control Period FY 2016-17 To FY 2018-19' dated 28 December 2015; Actual capital expenditure details for FY 2015-16 is not available with the Commission

⁹ As per Petitioner's submissions in response to Deficiency Notes

Sl. No.	66 kV Ongoing Schemes	Capital Expenditure (INR Cr)				Estimated	Total Estimated
		Actual	Actual	Actual	Actual		
		Up to FY 2014-15 ⁸	FY 2016-17 ⁹	FY 2017-18 ⁹	Actual Total	FY 2018-19 ⁹	Upto FY 2018-19
	assoiate 66kV Line Bays at Raipur Kalan, Chandigarh.						
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	8.96	0.37	-	9.33	-	9.33
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	1.95	-	0.62	2.57	1.87	4.44
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	0.18	-	0.33	0.51	0.71	1.22
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village-Sarangpur, UT, Chandigarh	9.48	-	-	9.48	-	9.48
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	6.57	-	-	6.57	-	6.57
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	6.27	-	-	6.27	-	6.27
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	-	-	-	-	4.74	4.74
	Total	33.41	0.37	1.11	34.89	7.32	42.21

The Commission notes that for Scheme Nos. A3 and A4, the estimated capital expenditure upto FY 2018-19 exceeds the original project costs allowed by the Commission in the previous Business Plan Order. The Commission disallows any such capital expenditure in excess of the original costs approved for these specific schemes.

With respect to the capitalisation schedule, the Commission notes that the Petitioner's plan for capitalisation is based on the original costs proposed in the previous Business Plan Petition (with the exception of scheme no. A8). Further, the Commission also observes that the total expenditure proposed for scheme no. A8 in the current Business Plan Petition (INR 7.90 Cr) is lower than the previous Business Plan Petition (INR 8.54 Cr). In view of no clarification provided by the Petitioner in this regard, the Commission approves the lower of the two values i.e. INR 7.90 Cr, as proposed by the Petitioner.

However, the Commission observes that scheme no. A1 was not approved in the Commission's approval of the previous Business Petition as the scheme was not approved by the UT administration at that time. The Petitioner has clarified that the UT Administration has approved the same vide its letter dated 10 June 2015 and that the same is now stalled due to Hon'ble High Court's status quo order dated 10 January 2017. The Commission takes serious view of Petitioner's not informing the Commission about status of the scheme and steps initiated by it to undertake the execution of this scheme without prior approval. The Commission does not approve any capital expenditure or capitalisation for scheme no. A1.

Accordingly, the Commission has approved the balance capital expenditure for the 66 kV ongoing schemes for the upcoming Control Period in the following table:

Table 48: Capital expenditure approved by the Commission for 66 kV ongoing schemes for the upcoming MYT Control Period

Sl. No.	66 kV Ongoing Schemes	Approved Capital Expenditure (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with associate 66kV Line Bays at Raipur Kalan, Chandigarh.	-	-	-	-
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	0.41	-	-	0.41
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	-	-	-	-
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	-	-	-	-
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	0.41	-	-	0.41
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	0.55	-	-	0.55
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	0.95	-	-	0.95
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	3.16	-	-	3.16
	Total	5.48	-	-	5.48

The capitalisation schedule approved by the Commission for 66 kV ongoing schemes is given below:

Table 49: Capitalisation schedule approved by the Commission for 66 kV ongoing schemes for the upcoming Control Period

Sl. No.	66 kV Ongoing Schemes	Approved Capitalisation (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
A1	Prov. 66kV Transmission Line to upcoming 66kV G/S/Stn along with associate 66kV Line Bays at Raipur Kalan, Chandigarh.	-	-	-	-
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	9.74	-	-	9.74
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	3.12	-	-	3.12
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18	-	-	1.18
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	9.89	-	-	9.89
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	7.12	-	-	7.12
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	7.22	-	-	7.22
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	7.90	-	-	7.90
	Total	46.17	-	-	46.17

Therefore, the Commission approves a total capital expenditure of INR 5.48 Cr and total capitalisation of INR 46.17 Cr for the upcoming Control Period for 66 kV ongoing schemes.

B1-B10. 66 kV - New schemes

Petitioner's Submission

B1. Replacement of existing battery bank and battery charger

The Petitioner has submitted that the above scheme includes supply, delivery, testing & commissioning of 220V 50 Amp full wave FCBC to replace the existing battery bank and battery charger at 66kV Grid Substation (Sector 39). The Petitioner also adds that it is aimed at improving system reliability and system upgradation.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 50: Capital expenditure proposed by the Petitioner for replacement of existing battery bank and battery charger for the upcoming MYT Control Period

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B1	Replacement of existing battery bank and battery charger	0.09	0.09	-	-

Table 51: Capitalisation schedule proposed by the Petitioner for replacement of existing battery bank and battery charger for the upcoming MYT Control Period

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B1	Replacement of existing battery bank and battery charger	0.09	-	-

B2. Providing 6 nos. 66kV outgoing feeders from upcoming 220kV GIS at Hallomajra, UT Chandigarh

The Petitioner has submitted that the said scheme is made of the following components:

- 66kV Double Circuit (underground) to existing 66kV GSS Sector 52, UT Chandigarh each consisting of single core 4x630mm² Aluminium conductor XLPE insulated cable (11.5x2 = 23KM Approx. for each circuit) with further extended link of one 66kV circuit to 33kV GSS Sector 34, UT Chandigarh (4x4 = 16KM Approx.) i.e. going to be upgraded to 66kV GSS
- 66kV Double Circuit (underground) to existing 66kV GSS Sector 47, UT Chandigarh each consisting of single core 4x630mm² Aluminium conductor XLPE insulated cable (6.5x2 = 13KM Approx. for each circuit)
- 66kV Single Circuit (underground) for 66kV GSS I/A Phase-I, UT Chandigarh consisting of single core 4x630mm² Aluminium conductor XLPE insulated cable (1KM Approx.) terminated at poultry farm chowk Chandigarh on existing 66kV overhead tower line circuit in between 66kV GSS I/A Ph-I & II, UT Chandigarh
- 66kV Single Circuit (underground) for 66kV GSS I/A Phase-II, UT Chandigarh consisting of single core 4x630mm² Aluminium conductor XLPE insulated cable (1KM Approx.) terminated at poultry farm chowk Chandigarh on existing 66kV overhead tower line circuit in between 66kV GSS I/A Ph-I & II, UT Chandigarh.

The Petitioner has further submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance. Further, the Petitioner has not submitted any capitalisation schedule for the said scheme as the Petitioner does not plan to capitalise the said scheme in the upcoming MYT Control Period.

The capital expenditure proposed by the Petitioner for the above scheme is as given in the following table:

Table 52: Capital expenditure proposed by the Petitioner for providing 6 nos. 66kV outgoing feeders from upcoming 220kV GIS at Hallomajra, UT Chandigarh

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B2	Providing 6 nos. 66kV outgoing feeders from upcoming 220kV GIS at Hallomajra, UT Chandigarh	76.00	19.00	34.00	23.00

B3. Replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 53: Capital expenditure proposed by the Petitioner for replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B3	Replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II	4.36	2.20	1.36	-

Table 54: Capitalisation schedule proposed by the Petitioner for replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B3	Replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-II	-	4.36	-

B4. Replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given in the following tables:

Table 55: Capital expenditure proposed by the Petitioner for replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B4	Replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I	1.38	1.00	0.38	-

Table 56: Capitalisation schedule proposed by the Petitioner for replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B4	Replacement / augmentation of damaged 66/11kV, 10/12.5MVA Power Transformers with 20MVA Power Transformers at Industrial Area, Phase-I	-	1.38	-

B5. Providing 1x30MVA 66/11kV additional Power TF & Replacement of 14 Nos. MOCB

The Petitioner has submitted that the said scheme is made of the following components:

- Providing 1x30MVA 66/11kV additional Power TF at 66kv Grid Substation (Sector-39)
- Replacement of 14 MOCB with SF6 breakers at 66kV Grid Substation (Sector-52 and Sector-12)

The Petitioner has also submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 57: Capital expenditure proposed by the Petitioner for providing 1x30MVA 66/11kV additional Power TF & replacement of 14 MOCB

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B5	Providing 1x30MVA 66/11kV additional Power TF & Replacement of 14 Nos. MOCB	10.37	2.10	5.20	3.07

Table 58: Capitalisation schedule proposed by the Petitioner for providing 1x30MVA 66/11kV additional Power TF & replacement of 14 MOCB

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B5	Providing 1x30MVA 66/11kV additional Power TF & Replacement of 14 Nos. MOCB	-	-	10.37

B6. Replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items at 66 kV Grid Sub Station I/A Phase-I & Phase-II and 33 kV Grid Sub Station I/A Phase-I, UT Chandigarh

The Petitioner has submitted that the said scheme is aimed at improving system reliability and system upgradation.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 59: Capital expenditure proposed by the Petitioner for replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B6	Replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items	4.99	-	3.20	1.79

Table 60: Capitalisation schedule proposed by the Petitioner for replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B6	Replacement of obsolete and old 66 kV isolator, 66 kV SF-6 breaker, 11 kV VCB and allied items	-	-	4.99

B7. Providing 2x20MVA, 66 / 11kV Gas Insulated Sub Station at Sector-26 UT Chandigarh along with 66 kV D/C line from I.T Grid Sub Station Kishangarh to 66kV Grid Sub Station Sector-26 UT Chandigarh

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance. Further, the Petitioner has not submitted any capitalisation schedule for the said scheme as it does not plan to capitalise the said scheme in the upcoming MYT Control Period.

The capital expenditure proposed by the Petitioner for the above scheme is as given below:

Table 61: Capital expenditure proposed by the Petitioner for providing 2x20 MVA, 66 / 11 kV gas insulated substation

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B7	Providing 2x20MVA, 66 / 11kV Gas Insulated Sub Station	27.29	-	16.37	10.92

B8. Conversion of existing 33 kV Sub Station Sector-18 to 66 kV Sub Station Sector-18 by Providing GIS 2x20 MVA, 66/11 kV Power Transformer along with 66 kV associated 66 kV T/L with underground cable from 66 kV Sector-26 to 66 kV Sector 18

The Petitioner has submitted that the scheme intends to upgrade the existing transmission network. The Petitioner adds that said scheme will help it meet peak demand and the upgradation of substation will provide better service to the consumers. Further, the Petitioner has not submitted any capitalisation schedule for the said scheme as it does not plan to capitalise the said scheme in the upcoming MYT Control Period.

The capital expenditure proposed by the Petitioner for the above scheme is as given below:

Table 62: Capital expenditure proposed by the Petitioner for providing GIS 2x20MVA, 66/11 kV Power Transformer along with 66 kV associated 66 kV transmission line

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B8	Providing GIS 2x20 MVA, 66/11 kV Power Transformer along with 66 kV associated 66 kV T/L	36.98	-	22.00	14.98

B9. Providing Hot Spare - 16/20 MVA, 66/11 kV Power Transformer

The Petitioner has submitted that the scheme is aimed at improving system reliability and system upgradation.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given in the following tables:

Table 63: Capital expenditure proposed by the Petitioner for providing Hot Spare - 16/20 MVA, 66/11 kV Power Transformer

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B9	Providing Hot Spare - 16/20 MVA, 66/11 kV Power Transformer	2.50	-	1.50	1.00

Table 64: Capitalisation schedule proposed by the Petitioner for providing Hot Spare - 16/20 MVA, 66/11 kV Power Transformer

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B9	Providing Hot Spare - 16/20 MVA, 66/11 kV Power Transformer	-	-	2.50

B10. Conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable from 220 kV GSS Kishangarh to 66 kV Sub Station Sector-12 UT Chandigarh to double circuit T/L

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 65: Capital expenditure proposed by the Petitioner for conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
B10	Conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable	7.37	-	4.42	2.95

Table 66: Capitalisation schedule proposed by the Petitioner for conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
B10	Conversion of 66 kV Single Circuit to Double Circuit T/L and U/G cable	-	-	7.37

Commission's analysis

The Commission notes that the Petitioner has failed to submit the DPRs / work orders for any of the proposed schemes and as specified in its overall approach, the Commission has not approved the capital expenditure and capitalisation proposed for proposed 66 kV new schemes. The Commission advises the Petitioner to furnish the relevant documents while submitting the MYT Petition, for Commission's consideration, to enable it to pass on the impact of the same in the Multi Year Tariff Order.

C1-C12. 11 kV - Ongoing and New schemes**Petitioner's Submission****C1. General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters**

The Petitioner has submitted that the above scheme will provide additional distribution network with transformer centers & HT/LT services lines for arranging power supply to various HT & LT category consumers.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 67: Capital expenditure proposed by the Petitioner for providing General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C1	General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters	11.26	3.14	3.28	3.42

Table 68: Capitalisation schedule proposed by the Petitioner for providing General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C1	General Service Connection (GSC) and Industrial Service Connection (ISC) including replacement of Electromechanical meters to Static meters	2.09	2.81	7.05

C2. Strengthening of Distribution Network by providing 11kV underground power distribution system

The Petitioner has submitted that various underground system would be laid in different parts of UT Chandigarh during the control period and that this will provide relief to the existing system. The Petitioner also adds that the scheme intends to provide U/G cable power distribution system and remove O/H lines to render uninterrupted and stable power supply to urban, rural and industrial areas of UT Chandigarh.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 69: Capital expenditure proposed by the Petitioner for strengthening of distribution network by providing 11kV underground power distribution system

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C2	Strengthening of Distribution Network by providing 11kV underground power distribution system	8.91	2.82	3.34	1.63

Table 70: Capitalisation schedule proposed by the Petitioner for strengthening of distribution network by providing 11kV underground power distribution system

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C2	Strengthening of Distribution Network by providing 11kV underground power distribution system	1.88	2.86	3.35

C3. Providing and Augmentation of the LT O/H ACSR conductors

The Petitioner has submitted that the old LT O/H ACSR conductors would be replaced with the new one of suitable capacity in phased manner. The Petitioner also adds that the augmentation of LT O/H ACSR conductor will reduce the technical losses and the proposed replacement of old LT O/H conductor aims to improve the reliability of power supply.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 71: Capital expenditure proposed by the Petitioner for providing and augmentation of the LT O/H ACSR conductors

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C3	Providing and Augmentation of the LT O/H ACSR conductors	0.55	0.34	0.15	-

Table 72: Capitalisation schedule proposed by the Petitioner for providing and augmentation of the LT O/H ACSR conductors

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C3	Providing and Augmentation of the LT O/H ACSR conductors	0.22	0.13	-

C4. Strengthening of Distribution Network by providing/ augmentation of 11/0.400kV, 1000/315/200/100 kVA Distribution Transformers along with ACB

The Petitioner has submitted that the distribution transformers would be installed at different locations, specifically at load centers. The Petitioner also adds that the scheme will provide reliable power and proper voltage to the prospective consumers.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 73: Capital expenditure proposed by the Petitioner for strengthening of distribution network by providing / augmentation of 11/0.400kV, 1000/315/200/100 kVA distribution transformers along with ACB

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C4	Strengthening of Distribution Network by providing / augmentation of 11/0.400kV, 1000/315/200/100 kVA Distribution Transformers along with ACB	8.82	4.95	1.62	1.14

Table 74: Capitalisation schedule proposed by the Petitioner for strengthening of distribution network by providing / augmentation of 11/0.400kV, 1000/315/200/100 kVA distribution transformers along with ACB

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C4	Strengthening of Distribution Network by providing / augmentation of 11/0.400kV, 1000/315/200/100 kVA Distribution Transformers along with ACB	3.30	1.39	2.36

C5. Providing 11kV/LT Aerial Bunched Conductor

The Petitioner has submitted that this scheme is expected to reduce the breakdowns / faults, thereby improving reliability of power in the respective area.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given in the following tables:

Table 75: Capital expenditure proposed by the Petitioner for providing 11kV/LT Aerial Bunched Conductor

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C5	Providing 11kV/LT Aerial Bunched Conductor	2.92	0.76	-	1.79

Table 76: Capitalisation schedule proposed by the Petitioner for providing 11kV/LT Aerial Bunched Conductor

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C5	Providing 11kV/LT Aerial Bunched Conductor	0.51	-	3.69

C6. Providing improved metering system, special tools, testing equipment, vehicle, skylift, safety devices, office equipment etc.

The Petitioner has submitted that this scheme will help improve its functionality and will thus help it provide better customer service.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 77: Capital expenditure proposed by the Petitioner for providing improved metering system, special tools, testing equipment, vehicle, skylift, safety devices, office equipment etc.

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C6	Providing improved metering system, special tools, testing equipment, vehicle, skylift, safety devices, office equipment etc.	2.00	1.28	0.47	-

Table 78: Capitalisation schedule proposed by the Petitioner for providing improved metering system, special tools, testing equipment, vehicle, skylift, safety devices, office equipment etc.

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C6	Providing improved metering system, special tools, testing equipment, vehicle, skylift, safety devices, office equipment etc.	0.85	0.40	-

C7. Improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations including HT/LT Panels, ACB/OCB, Battery bank, CT/PT, HT/ LT Shunt Capacitors etc. on the existing distribution transformers

The Petitioner has submitted that the scheme will provide system augmentation & upgradation.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given in the following tables:

Table 79: Capital expenditure proposed by the Petitioner for improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C7	Improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations	21.24	2.98	9.47	6.11

Table 80: Capitalisation schedule proposed by the Petitioner for improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C7	Improvement and augmentation of 66/11 kV existing sub-station and 11kV Indoor sub-stations	1.98	8.11	12.61

C8. Miscellaneous works such as Renovation of houses in Electricity Colony, Unforeseen Works etc.

The Petitioner has submitted that this scheme help improve its functionality and will thus help it provide better customer service.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 81: Capital expenditure proposed by the Petitioner for miscellaneous works such as Renovation of houses in Electricity Colony, Unforeseen Works etc.

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C8	Miscellaneous works such as Renovation of houses in Electricity Colony, Unforeseen Works etc.	6.07	2.00	1.80	1.50

Table 82: Capitalisation schedule proposed by the Petitioner for miscellaneous works such as Renovation of houses in Electricity Colony, Unforeseen Works etc.

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C8	Miscellaneous works such as Renovation of houses in Electricity Colony, Unforeseen Works etc.	1.33	1.54	3.09

C9. Smart Grid Project under Sub-Division No. 5

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 83: Capital expenditure proposed by the Petitioner for Smart Grid Project under Sub-Division No. 5

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C9	Smart Grid Project under Sub-Division No. 5	25.20	12.00	8.36	-

Table 84: Capitalisation schedule proposed by the Petitioner for Smart Grid Project under Sub-Division No. 5

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C9	Smart Grid Project under Sub-Division No. 5	-	25.20	-

C10. Conversion of Existing Overhead HT/ LT Lines into underground Equipment of 11 kV I/D S/Stn. Including Street Light System in Sector 8, UT, Chandigarh on Turnkey Basis

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 85: Capital expenditure proposed by the Petitioner for conversion of Existing Overhead HT/ LT Lines into underground Equipment of 11 kV I/D S/Stn

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C10	Conversion of Existing Overhead HT/ LT Lines into underground Equipment of 11 kV I/D S/Stn	18.14	9.00	4.14	-

Table 86: Capitalisation schedule proposed by the Petitioner for conversion of Existing Overhead HT/ LT Lines into underground Equipment of 11 kV I/D S/Stn

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C10	Conversion of Existing Overhead HT/ LT Lines into underground Equipment of 11 kV I/D S/Stn	-	18.14	-

C11. The Smart Grid Project of whole Chandigarh

The Petitioner has submitted that the scheme will help in improving service reliability to consumers in the area and will help meet JERC's Standards of Performance. The Petitioner also adds that the scheme is under approval by NSGM / MoP.

The Petitioner has not proposed any capitalisation for the said scheme as the Petitioner does not plan for the scheme to be operational in the upcoming MYT Control Period. The capital expenditure proposed by the Petitioner for the above scheme is as given below:

Table 87: Capital expenditure proposed by the Petitioner for Smart Grid Project of whole Chandigarh

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C11	The Smart Grid Project of whole Chandigarh	256.00	-	10.00	20.00

C12. Installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit

The Petitioner has submitted that the scheme will help it submit energy audits as per direction of the Hon'ble Commission in various Tariff Orders. The Petitioner adds that the estimate is approved and DNIT is under process.

The capital expenditure and capitalisation schedule proposed by the Petitioner for the above scheme is as given below:

Table 88: Capital expenditure proposed by the Petitioner for installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Proposed Expenditure (INR Cr)		
			FY 2019-20	FY 2020-21	FY 2021-22
C12	Installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit	0.82	-	0.82	-

Table 89: Capitalisation schedule proposed by the Petitioner for installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit

Sl. No.	Name of Scheme	Proposed Capitalisation (INR Cr)		
		FY 2019-20	FY 2020-21	FY 2021-22
C12	Installation of AMR & DLMS compliant energy meters at EHV sub-stations for Energy Audit	-	0.82	-

Commission's analysis

The Commission observes that the Petitioner has submitted DPRs only for Scheme Nos. C9 and C11 and therefore the Commission approves capital expenditure and capitalisation for these schemes. The Commission, in line with its overall approach, has not approved capital expenditure and capitalisation for any of the proposed schemes if the Petitioner has failed to submit the DPRs / work orders. The Commission advises the Petitioner to furnish the relevant documents while submitting the MYT Petition, for Commission's consideration, to enable it to pass on the impact of the same in the Multi Year Tariff Order.

The capital expenditure for 11kV schemes is given in the following table:

Table 90: Capital expenditure approved by the Petitioner for 11 kV Schemes

Sl. No.	Name of Scheme	Total estimated amount (INR Cr)	Approved Expenditure (INR Cr)			
			FY 2019-20	FY 2020-21	FY 2021-22	Total
C9	Smart Grid Project under Sub-Division No. 5	25.20	12.00	8.36	-	20.36
C11	The Smart Grid Project of whole Chandigarh	256.00	-	10.00	20.00	30.00
	Total		12.00	18.36	20.00	50.36

The capitalisation for 11kV schemes, adjusted to capital expenditure proposed for Scheme No. C9, is given in the following table

Table 91: Capitalisation schedule approved by the Petitioner for 11 kV Schemes

Sl. No.	Name of Scheme	Approved Capitalisation (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
C9	Smart Grid Project under Sub-Division No. 5	-	25.20	-	25.20
C11	The Smart Grid Project of whole Chandigarh	-	-	-	-
	Total	-	25.20		25.20

Therefore, the Commission approves a total capital expenditure of INR 50.36 Cr and total capitalisation of INR 25.20 Cr for the upcoming Control Period for 11 kV ongoing and new schemes.

Summary of capital expenditure approved by the Commission

The summary of capital expenditure approved by the Commission for the upcoming Control Period is given below:

Table 92: Summary of capital expenditure approved by the Commission for the upcoming Control Period

Sl. No.	Scheme	Approved Capital Expenditure (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
66 kV Ongoing Schemes					
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	0.41	-	-	0.41
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	0.41	-	-	0.41
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	0.55	-	-	0.55
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	0.95	-	-	0.95
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	3.16	-	-	3.16
11 kV Ongoing and New Schemes					
C9	Smart Grid Project under Sub-Division No. 5	12.00	8.36	-	20.36
C11	The Smart Grid Project of whole Chandigarh	-	10.00	20.00	30.00
Total		17.48	18.36	20.00	55.84

Therefore, the Commission approves a total capital expenditure of INR 55.84 Cr for the upcoming Control Period.

Summary of capitalisation approved by the Commission

The summary of capitalisation approved by the Commission for the upcoming Control Period is given below:

Table 93: Summary of capitalisation approved by the Commission for the upcoming Control Period

Sl. No.	Scheme	Approved Capitalisation (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
66 kV Ongoing Schemes					
A2	Providing 2x20MVA, 66/11kV Grid Sub-Station at Raipur Kalan.	9.74	-	-	9.74
A3	Providing double circuit 66 kV overhead TL tussled monopoles from T off point 60 proposed 66/11 kV Grid substation village Sarangpur, UT Chandigarh.	3.12	-	-	3.12
A4	Construction of Double Circuit 66kV overhead Transmission line & Construction of 2 Nos. Line Bays	1.18	-	-	1.18
A5	Turnkey execution of new 66kV 2x20 MVA Grid S/Stn. at institutional Area, Village- Sarangpur, UT, Chandigarh	9.89	-	-	9.89
A6	Up gradation of T/F capacity 66/11kV Grid S/Stn. IT Park by replacing 2x12.5 MVA with 2x20MVA T/F and shifting & reinstallation 2x12.5 MVA at Civil Sectt. Sector-1 & Sector-12, Chandigarh.	7.12	-	-	7.12
A7	Up gradation of existing 33kV S/Stn. To 66kV by providing 1x30MVA, 66/11kV power T/F at Sector-34, Chandigarh.	7.22	-	-	7.22
A8	Providing 66 kV Transmission line with underground cable from Sector-32 Grid Sub Station to Sector 34 Grid Sub Station	7.90	-	-	7.90
11 kV Ongoing and New Schemes					

Sl. No.	Scheme	Approved Capitalisation (INR Cr)			
		FY 2019-20	FY 2020-21	FY 2021-22	Total
C9	Smart Grid Project under Sub-Division No. 5	-	25.20	-	25.20
	Total	46.17	25.20	-	71.37

Therefore, the Commission approves a total capitalisation of INR 71.37 Cr for the upcoming Control Period.

3.5.2. Funding Plan

Petitioner's submission

The Petitioner has submitted that the capital expenditure towards the proposed schemes is planned to be funded through 100% equity from Government of India.

Commission's analysis

The Petitioner can only consider equity up to 30% of the capital cost and the balance in excess of 30% shall be treated as normative debt as per Clause 26.2 of the JERC MYT Regulations:

“Provided also that if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as a normative loan for the Licensee for determination of tariff.”

Based on the approved capital expenditure for each of the schemes and the MYT Regulations stated above, the approved funding plan is given in the table below:

Table 94: Approved funding plan for the upcoming Control Period

Sr. No.	Sources of Funds	FY 2019-20	FY 2020-21	FY 2021-22	Total
A	Total Capital Expenditure (INR Cr)	17.48	18.36	20.00	55.84
B	Debt (%)	70%	70%	70%	70%
C	Equity (%)	30%	30%	30%	30%
D	Normative Debt (INR Cr) (A x B)	12.24	12.85	14.00	39.09
E	Equity (INR Cr) (A x C)	5.24	5.51	6.00	16.75

3.6. Manpower Plan

3.6.1. Employee strength

Petitioner's submission

The status of employee strength (as on 1 April 2018) and future manpower planning for the upcoming Control Period, is as given in the following table:

Table 95: Status of employee strength (as on 1 April 2018) and future manpower projections submitted by the Petitioner

Sl. No.	Particulars	Actuals FY 2017-18	Ensuing Projections FY 2018-19	Ensuing Year Projection FY 2019-20	Ensuing Year Projection FY 2020-21	Ensuing Year Projection 2021-22
1	No. of employees as on 1st April	918 (R ¹⁰), 209 (O/S ¹⁰)	1,106	1,309	1,308	1,301
2	No. of employees added during the year	32 (R)	111 (R), 132 (O/S)	40 (R)	41 (R)	48 (R)
3	Total number of employees (1+2)	1,159	1,349	1,349	1,349	1,349

¹⁰R – Regular, O/S - Outsourced

Sl. No.	Particulars	Actuals FY 2017-18	Ensuing Projections FY 2018-19	Ensuing Year Projection FY 2019-20	Ensuing Year Projection FY 2020-21	Ensuing Year Projection 2021-22
4	Number of employees retired/retiring during the year	38 (R), 15 (O/S)	40 (R)	41 (R)	48 (R)	35 (R)
5	Number of employees at the end of the year (3-4)	1,106	1,309	1,308	1,301	1,314

Level wise recruitment planned for the upcoming Control Period is as given in the following table:

Table 96: Level wise recruitment planned for the upcoming Control Period

Sl. No.	Category	No. of Posts					
		2017-18	2018-19		2019-20	2020-21	2021-22
			Regular	Outsourced			
1	AE	-	5	-	-	-	-
2	LDC	27	-	3	12	10	15
3	Steno-typist	-	5	-	-	-	-
4	JE	1	30	-	5	8	12
5	Peon	3	-	-	-	-	-
6	Lineman	1	-	-	10	5	6
7	Assistant Lineman	-	65	129	13	18	15
8	Foreman	-	3	-	-	-	-
9	UDC	-	2	-	-	-	-
10	IA	-	1	-	-	-	-
Total		32	111	132	40	41	48

Commission's analysis

The Commission approves the Petitioner's additional manpower requirements. However, the Commission directs the Petitioner to furnish the Government approvals at the time of Multi-Year Tariff determination.

3.6.2. Training and re-skilling

Petitioner's submission

The training and re-skilling cost proposed by the Petitioner for the upcoming Control Period is as given in the following table:

Table 97: Training and re-skilling cost proposed by the Petitioner for the upcoming Control Period

Sl. No.	Program	Cost (INR Cr)				
		Actual	Revised Estimate	Projected		
		2017-18	2018-19	2019-20	2020-21	2021-22
1	Residential	0.00	-	-	-	-
2	Non-residential	0.12	0.26	0.26	0.28	0.30
Total		0.12	0.26	0.26	0.28	0.30

Commission's analysis

The Commission observes that these expenses form part of the ARR and shall be approved by the Commission subsequently at the time of approval of the MYT Petition. The Petitioner is directed to submit the details pertaining to the proposed expenditure under this head in last three years, the basis for considering the proposed amount including any other expenditure planned to be carried out under this proposed amount.

3.6.3. Safety measures

Petitioner's submission

The expenditure on safety measures proposed by the Petitioner for the upcoming Control Period is as given in the following table:

Table 98: Expenditure on safety measures proposed by the Petitioner for the upcoming Control Period

Particulars	FY 2019-20	FY 2020-21	FY 2021-22
Proposed Expenditure (INR Cr)	0.10	0.12	0.10

Commission's analysis

The Commission observes that these expenses form part of the ARR and shall be approved by the Commission subsequently at the time of approval of the MYT Petition. The Petitioner is directed to submit the details pertaining to the proposed expenditure under this head in last three years, the basis for considering the proposed amount including any other expenditure planned to be carried out under this proposed amount.